

Watershed Restoration Action Strategy for the Little Calumet-Galien Watershed

Part 1: Characterization and Responsibilities



Prepared for
Indiana Department of Environmental Management
Office of Water Quality
Watershed Management Section

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FOREWORD

The Little Calumet-Galien Watershed Restoration Action Strategy (WRAS) is intended to be a living document designed to assist restoration and protection efforts of stakeholders in their sub-watersheds. As a "living document" information contained within the WRAS will need to be revised and updated periodically.

The WRAS is divided into two parts: Part I, Characterization and Responsibilities and Part II, Concerns and Recommendations.

The first draft of the Little Calumet-Galien WRAS was released for public review during the spring of 2002. A 60-day public comment period followed the public meetings at which this WRAS document was introduced. This final version of the WRAS includes public comments received during the 60-day comment period. For comments to be included in the final version, they were required to be written and submitted to WHPA, Inc. (the firm contracted to produce this WRAS) during the comment period.

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EXECUTIVE SUMMARY

The overall goal and purpose of Part I of the Watershed Restoration Action Strategy (WRAS) is to provide a reference point and map to assist local citizens with improving water quality. The major water quality concerns and recommended management strategies will be addressed in Part II: Concerns and Recommendations of the WRAS.

This Strategy broadly covers the entire watershed; therefore, it is intended to be an overall strategy and does not dictate management and activities at the stream site or segment level. Water quality management decisions and activities for individual portions of the watershed are most effective and efficient when managed through sub-watershed plans. However, these sub-watershed plans must also consider the impact on the watershed as a whole.

This Strategy is intended to be a fluid document in order to respond to the changing and dynamic quality of our environment. Therefore, this Strategy will require revision when updated information becomes available. Additionally, the reader may notice that some of the information in this Strategy is provided in duplicate. This is a result of the interconnectedness of the issues discussed and an assumption made by the authors that many readers may only be interested in a few sections of this Strategy.

Overview of the Little Calumet-Galien Watershed

The Little Calumet River watershed discussed in this report is composed of portions of two larger watersheds that happen to lie within Indiana's borders. The Little Calumet River collects its waters from many small streams and drainage ditches in northwestern Indiana before emptying into Lake Michigan via Burns Ditch in Indiana and the Calumet Harbor in Illinois. An interesting feature of the Grand Calumet River is that its direction of flow is intimately tied with the water levels in Lake Michigan. The direction of flow can shift, depending on the lake levels and climate conditions (USGS 1994). Most of the Little Calumet-Galien watershed has been altered from its historic setting. Land use in this watershed is predominantly urban, suburban, and industrial. Some of the land is used for agriculture, while only a remnant of the historic wetlands remains (USEPA 2002a).

Current Status of Water Quality in the Little Calumet-Galien Watershed

Section 303(d) of the Clean Water Act requires states to identify waters that do not meet, or are not expected to meet, applicable water quality standards. The Clean Water Act Section 303(d) list for Indiana provides a basis for understanding the current status of water quality in the Little Calumet-Galien Watershed. The waterbodies listed in Table 0-1 are on Indiana's 1998 Clean Water Act Section 303(d) list submitted to and approved by EPA (IDEM 1998). The 2002 draft 303(d) list has been completed and the final list will be released in October 2002. The draft 2002 list is not included in this document, but is available from IDEM's Office of Water Quality (<http://www.state.in.us/idem/water/planbr/wqs/303d.html>).

Water Quality Goal

The overall water quality goal for the Little Calumet-Galien Watershed is that all waterbodies meet the applicable water quality standards for their designated uses as determined by the State of Indiana, under the provisions of the Clean Water Act.

Part I, Chapter 1: Characterization and Responsibilities

1. Introduction

The Clean Water Action Plan was developed by federal agencies in 1998 to commemorate the 25th anniversary of the Clean Water Act and to "help revitalize the nation's commitment to our valuable water resources." The Plan proposed that "states and tribes should work with public agencies and private-sector organizations and citizens to develop, based on the initial schedule for the first two years, Watershed Restoration Action Strategies, for watersheds most in need of restoration" (USEPA 1998). A WRAS is essentially a large-scale coordination plan for an eight-digit hydrologic unit watershed. Each year, more assessments and data may become available. This will require amendments to the WRAS, which must be flexible and broad enough to accommodate change. The WRAS will also foster greater cooperation among State and Federal agencies, which should result in more effective use of personnel and resources.

The WRAS provides an opportunity to assemble, in one place, projects and monitoring that have been completed or are on-going within a watershed. It also allows agencies and stakeholders to compare watershed goals and provides a guide for future work within a watershed.

The WRAS for the Little Calumet-Galien watershed contains two parts. Part I provides a characterization of water quality in the watershed and agency responsibilities. Part II provides a discussion of resource concerns and recommended strategies.

1.1 Purpose of This Document

The overall goal and purpose of the Watershed Restoration Action Strategy Part I is to provide a reference point and roadmap to assist with improving water quality. Part I is a compilation of information, facts, and local concerns in this watershed. It will serve as a reference document for watershed groups and others involved in the assessment and planning of watershed restoration activities.

Part I of the Strategy is intended to be a fluid document in order to respond to the changing and dynamic quality of our environment. Therefore, it will require revision when updated information becomes available.

1.2 Guide to the Use of This Document

Chapter 1: Introduction - This Chapter provides a non-technical description of the purpose of Part I of the Strategy. This Chapter also provides an overview of stakeholder groups in the Little Calumet-Galien watershed.

Chapter 2: General Watershed Description - Some of the specific topics covered in this chapter include:

- An overview of the watershed
- Hydrology of the watershed
- A summary of land use within the watershed
- Natural resources in the watershed
- Population statistics

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- Major water uses in the watershed
- Water quality classifications and standards

Chapter 3: Causes and Sources of Water Pollution - This Chapter describes a number of important causes of water quality impacts including biochemical oxygen demand (BOD), toxic substances, nutrients, *E. coli* bacteria and others. This Chapter also describes both point and nonpoint sources of pollution.

Chapter 4: Water Quality and Use Support Ratings - This Chapter describes the various types of water quality monitoring conducted by IDEM. It summarizes water quality in the watershed based on Office of Water Quality data, and presents a summary of use support ratings for those surface waters that have been monitored or evaluated.

Chapter 5: State and Federal Water Quality Programs - Chapter 5 summarizes the existing State and Federal point and nonpoint source pollution control programs available to address water quality problems. These programs are management tools available for addressing the priority water quality concerns and issues that are discussed in Part II of the Strategy. Chapter 5 also describes the concept of Total Maximum Daily Loads (TMDLs). TMDLs represent management strategies aimed at controlling point and nonpoint source pollutants. IDEM's TMDL Strategy will also be discussed.

1.3 Stakeholder Groups in the Watershed

The Little Calumet-Galien watershed contains several stakeholder groups that have different missions (Appendix C). Many of these groups have a long history of conservation work in the Little Calumet-Galien watershed. The following discussions briefly describe some of the watershed groups.

Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS), under the U.S. Department of Agriculture (USDA), provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment. The NRCS offers landowners financial, technical, and educational assistance to implement conservation practices on privately owned land. Using this help, farmers, ranchers, and forest landowners apply practices that reduce soil erosion, improve water quality, and enhance crop land, forest land, wetlands, grazing lands, and wildlife habitat. Incentives offered by USDA promote sustainable agricultural and forestry practices, which protect and conserve valuable farm and forest land for future generations. USDA assistance also helps individuals and communities restore natural resources after floods, fires, or other natural disasters.

Soil and Water Conservation Districts

Local Soil and Water Conservation Districts (SWCD) assist land users and residents in the protection and improvement of the local environment. SWCDs can provide technical and financial assistance to local watershed conservation groups.

Grand Calumet Task Force

The Grand Calumet Task Force is a community environmental organization which works to improve the land, air and water quality of the Grand Calumet River and the urban ecosystem that surrounds it and to achieve environmental justice for the people of Northwest Indiana.

Goals:

To restore the Grand Calumet River Basin, including the adjacent wetlands and near shore Lake Michigan;

To alert the community about the impact of pollution on human health and the environment;

To promote public involvement and decision-making in all aspects of environmental protection and restoration;

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To promote environmentally sound jobs and diverse economic development in sustainable communities;

To be a catalyst for the people, their organizations, businesses and governments to come together to eliminate the effects of over 100 years of industrial pollution;

To disclose and fight environmental discrimination actions and policies by industry or government that place unfair burdens on people of color and the poor;

To support and/or participate in regional development initiatives that preserve and enhance the ecosystem;

To be a resource for residents of at-risk communities who assert their environmental rights.

Hoosier River Watch

Hoosier Riverwatch is a state-sponsored water quality monitoring initiative. The program was started in 1994 to increase public awareness of water quality issues and concerns by training volunteers to monitor stream water quality. Hoosier Riverwatch collaborates with agencies and volunteers to:

- Increase public involvement in water quality issues through hands-on training of volunteers in stream monitoring and cleanup activities.
- Educate local communities about the relationship between land use and water quality.
- Provide water quality information to citizens and governmental agencies working to protect Indiana's rivers and streams.

Lake Michigan Coastal Program

Indiana is developing the Lake Michigan Coastal Program (LMCP) to participate in a national initiative, Coastal Zone Management Program, with 33 other coastal states to protect, restore, and responsibly develop Indiana's coastal area. The purpose of the LMCP is to support coordination and partnerships among local, state, and federal agencies and local organizations for the protection and sustainable use of natural and cultural resources in the Lake Michigan region. The LMCP is based on Indiana's existing laws. It does not create any new laws. Development of the LMCP will make more than \$900,000 (based on the proposed 2001 Congressional budget) available annually to implement the LMCP and for grants to communities in northwest Indiana. Examples of how these funds might be used include:

Protection and restoration of significant natural and cultural resources.

Programs to prevent the loss of life and property in coastal hazard areas.

Improved public access for recreational purposes.

Revitalized urban waterfronts and ports.

Improved coordination among government agencies in policy and decision-making processes.

Pollution prevention initiatives, including non-point source pollution into coastal waters.

Little Calumet River Project

The Little Calumet River Watershed is an area draining into Lake Michigan from Will and Cook Counties in Illinois; Lake, Porter and LaPorte Counties Indiana; and Berrien County in Michigan. The watershed project area includes land in the Hydrologic Units 712003 and 04040001 as determined by the U.S. Geological Survey, Department of Interior. The Porter and Lake Soil and Water Conservation Districts in Indiana and the Will-South Cook County Soil and Water Conservation District in

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Illinois have signed a mutual agreement to proceed with the development of the Little Calumet River Project.

The Little Calumet River Planning initiative resulted from the concerns of local landowners/occupiers living in the area. Watershed planning is recognized as one method to give local stakeholders the opportunity to identify their desired future conditions while enlisting the assistance and support of agencies and organizations involved in administering technical or financial support to natural resources issues.

The Illinois Little Calumet Watershed Plan, dated November 1978, identified several issues, however, the upper area involving Lake County, Indiana was not included. The importance of an updated comprehensive watershed plan involving both Illinois and Indiana is recognized as a valuable document that will reflect the goals of the stakeholders in the Little Calumet Watershed. The Porter and Lake Soil and Water Conservation Districts of Indiana and the Will-South Cook County Soil and Water Conservation District of Illinois are taking the lead to assist in this effort.

The watershed plan will identify the needs, while the agencies and organizations involved in the watershed activities will be asked for their support for solutions to the needs that the area faces. This will enable the local citizens to reside in this geographical area and enjoy the quality of life they have come to expect.

NIRPC

The Northwestern Indiana Regional Planning Commission (NIRPC) is developing a watershed management plan for the Little-Calumet-Galien and Kankakee basins that are located in Lake, Porter and LaPorte Counties. A Watershed Management Advisory Group has been formed with stakeholders from the three counties. The plan will be completed by the summer of 2005 addressing issues such as water quality enhancement, restoration and protection, land use planning, farm preservation, government regulation, coordination and enhancement, wetland preservation, and public education.

Northwest Territory RC&D

The Northwest Territory Resource Conservation and Development program helps people protect and develop their economic, natural and social resources in ways that improve their area's economy, environment, and quality of life. The NWT RC&D Council provides a way for people to plan and implement projects in Lake, Porter, and St. Joseph counties that will make our communities a better place to live.

Save the Dunes

The Save the Dunes Council of northwest Indiana was founded in 1952, one of the oldest grassroots conservation organizations in the country. Its objectives are to maintain and restore the integrity and quality of the natural environment of the Indiana Dunes region. The hard work of Save the Dunes Council members led to the establishment of the Indiana Dunes National Lakeshore in 1966; the group continues to work on a wide variety of issues concerning the Dunes and the environmental quality of the area. The efforts of the Save the Dunes Council are supported entirely by membership dues, donations and volunteer time.

The Save the Dunes Conservation Fund was established in 1994 to restore and protect the environment of the Indiana Dunes. Among its activities the Conservation Fund has restored a foredune on Gary's Lake Michigan shoreline, has assisted the Minority Health Coalition of LaPorte County on projects in the area of a Superfund site, and has worked with teachers, individuals, and agencies to monitor the health of local streams and waterways.

Shirley Heinze Environmental Fund

The Shirley Heinze Environmental Fund, a non-profit organization, was endowed in 1981 as a charitable trust to preserve and protect the unique ecosystems of the Indiana Dunes region. The Heinze Fund's goals are threefold: (1) to protect endangered habitats through the acquisition and restoration of environmentally significant properties; (2) to promote environmental awareness through community outreach programs and publications; and (3) to advance the goals of clean air and water for Northwest Indiana.

LaPorte County Parks & Rec

The LaPorte County Parks Department manages several parks in the county that include a variety of ecosystems: upland forest, wetland, prairie, and stocked ponds. The Red Mill Property includes a 100-acre nature preserve and the headwaters to the Little Calumet River. The dam, circa 1830, was originally built to support a grist sawmill, but now provides open water and wetland habitat for a variety of wildlife. The Parks Department is currently applying for a grant from the Indiana DNR Division of Water-Lake Michigan Coastal Program for maintenance and dredging work upstream of the dam. This will promote both recreational activities and wetland preservation in the Little Calumet Headwaters State Dedicated Nature Preserve associated with the park.

Laporte County Conservation Trust Inc.

The LaPorte County Conservation Trust is an all volunteer, non-profit 501 (c) (3) organization committed to maintaining and improving water quality in LaPorte County. As a land trust, they are dedicated to protecting natural lands by purchasing and accepting donations of land or conservation easements. They currently own a 23 acre state nature preserve known as Wintergreen Woods, a wet woodland that contains a drainage into the Trail Creek Watershed. They also perform educational functions concerning land conservation and bio-diversity.

Part I, Chapter 2: General Watershed Description

This Chapter provides a general description of the Little Calumet-Galien Watershed and includes the following:

Section 2.1 Little Calumet-Galien Watershed Overview

Section 2.2 Land Cover, Population, and Growth Trends

Section 2.3 Agricultural Activities in the Little Calumet-Galien Watershed

Section 2.4 Significant Natural Areas in the Little Calumet-Galien Watershed

Section 2.5 Surface Water Use Designations and Classifications

Section 2.6 US Geological Survey Water Use Information for the Little Calumet-Galien Watershed

Section 2.7 Superfund Sites in the Little Calumet-Galien Watershed

2.1 Little Calumet-Galien Watershed Overview

The Little Calumet-Galien watershed consists of portions of two 8 digit (04040001 and 07120003) hydrologic unit code (HUC) watersheds located in northwestern Indiana (Figure 2-1). The Indiana portions of these watersheds encompass approximately 1000 square miles in four different counties and approximately 500 miles of perennial streams (USEPA 2002a). It is subdivided into 44 subbasins represented on the map by 14 digit HUCs (Figure 2-2). Nearly one-quarter of the watershed is classified as urban, one-quarter is forested and two-fifths is agricultural. The majority of the soils in the watershed have low to medium erosion potential (Figure 2-3).

The Little Calumet River watershed discussed in this report is composed of portions of two larger watersheds that happen to lie within Indiana's borders. The Little Calumet River collects its waters from many small streams and drainage ditches in northwestern Indiana before emptying into Lake Michigan via Burns Ditch in Indiana and the Calumet Harbor in Illinois. An interesting feature of the Grand Calumet River is that its direction of flow is intimately tied with the water levels in Lake Michigan. The direction of flow can shift, depending on the lake levels and climate conditions (USGS 1994). Most of the Little Calumet-Galien watershed has been altered from its historic setting. Land use in this watershed is predominantly urban, suburban, and industrial. Some of the land is used for agriculture, while only a remnant of the historic wetlands remains (USEPA 2002a).

The eastern portion of the Little Calumet-Galien watershed is located in the Southern Michigan/Northern Indiana Drift Plains ecoregion, which is characterized by many lakes and marshes, as well as an assortment of landforms, soil types and textures, and land uses. The drift plains ecoregion is less agricultural than the Corn Belt plains to the south and west. The western portion of the Little Calumet-Galien watershed is located in the Central Corn Belt plains ecoregion, which is characterized by smooth plains that once supported extensive prairie communities intermixed with oak-hickory forests. The dark, fertile soil is well-suited for agriculture and much of the natural vegetation has been replaced by corn and soybeans (US EPA 1999).

2.2 Land Cover, Population, and Growth Trends

2.2.1 General Land Cover

Native vegetation in the Little Calumet-Galien watershed is a mixture of prairie and oak-hickory forest in varied stages of succession. The U.S. Geological Survey - Biological Resources Division and the U.S. Fish and Wildlife Service are overseeing

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the National Gap Analysis Program (GAP). In Indiana, Indiana State University and Indiana University are carrying out the Indiana GAP Project which involves an analysis of current vegetative land cover through remote sensing (ISU 2001). This analysis provides vegetative land cover data in 30 by 30-meter grids (Figure 2-4). The following is a summary of vegetative cover in the watershed determined from the GAP image:

22.3% Urban (impervious, low and high density)
40.4% Agricultural vegetation (row crop and pasture)
25.3% Forest vegetation (shrubland, woodland, forest)
10.1% Wetland vegetation (Palustrine: forest, shrubland, herbaceous)
1.9% Open Water

2.2.2 Population

The 2000 total population in the four counties that have land portions in the watershed was 1,007,027 (Census 2001). Table 2-1 shows a break down of population by county and estimated population projections. It should be noted that these numbers do not reflect the actual population living in the Little Calumet-Galien watershed. For example, only a small portion of St. Joseph County lies within the land area of the Little Calumet-Galien watershed (Figure 2-1). A better estimate of the population within the Little Calumet-Galien watershed may be the 1995 U.S. Geological Survey Water Use Reports, which show a total population in the watershed of 614,670 in 1995 (Table 2-7).

The U.S. Census and the Indiana Business Research Center also provide information about the population in cities and towns (IBRC 1997). Table 2-2 contains population estimates for various cities and towns located within the watershed.

2.3 Agricultural Activities in the Little Calumet-Galien Watershed

Agriculture is an important land use in the Little Calumet-Galien Watershed. Section 2.2.1 shows that 40.4 percent of land cover in the watershed is agricultural vegetation. This section provides an overview of the agricultural activities in the watershed.

2.3.1 Livestock Operations

Livestock production within the watershed encompasses several species and the overall composition changes from county to county. Hogs and cattle are produced in all four counties, significant numbers of layers are produced in three of the four counties, and a significant number of sheep are produced in Porter and La Porte counties. See Table 2-3 for livestock inventory numbers. Some animals are raised in open lots or pastures and some are raised in confined feeding lots or buildings.

Confined feeding is the raising of animals for food, fur or recreation in lots, pens, ponds, sheds or buildings, where they are confined, fed and maintained for at least 45 days during any year, and where there is no ground cover or vegetation present over at least half of the animals' confinement area. Livestock markets and sale barns are generally excluded (IDEM 1999a).

Indiana law defines a confined feeding operation as any livestock operation engaged in the confined feeding of at least 300 cattle, or 600 swine or sheep, or 30,000 fowl, such as chickens, ducks and other poultry. The IDEM regulates these confined feeding operations, as well as smaller livestock operations which have violated water pollution rules or laws, under IC 13-18-10.

As of October 1999, there were 47 livestock producers operating under the Confined Feeding Rules in the four counties of the watershed (IDEM 1999). Table 2-3 shows livestock numbers from the USDA Agricultural Census "inventory" animals in each county (USDA 1997).

2.3.2 Crop Production

The soils of the Little Calumet-Galien watershed are good for crop production. Table 2-4 lists the 1997 acres of the major crops

produced in 1997 throughout the four counties in the watershed. For 1997, total acres of corn for grain edged out total acres of soybeans for beans as the number one crop produced in the four counties. Corn and soybeans are clearly the primary crops produced in the watershed on the basis of total acres.

2.4 Significant Natural Areas in the Little Calumet-Galien Watershed

In 1993, the Indiana Natural Resources Commission (NRC) adopted its "Outstanding Rivers" List for Indiana. This listing is referenced in the standards for utility line crossings within floodways, formerly governed by IC 14-28-2 and now controlled by 310 IAC 6-1-16 through 310 IAC 6-1-18. Except where incorporated into a statute or rule, the "Outstanding Rivers List" is intended to provide guidance rather than to have regulatory application (NRC 1997). To help identify the rivers and streams which have particular environmental or aesthetic interest, a special listing has been prepared by IDNR's Division of Outdoor Recreation. This listing is a corrected and condensed version of a list compiled by American Rivers and dated October 1990. The NRC has adopted the IDNR listing as an official recognition of the resource values of these waters. A river included in the "Outstanding Rivers List" qualifies under one or more of 22 categories. Table 2-5 presents the rivers in the Little Calumet-Galien watershed which are on the "Outstanding Rivers List" and their significance.

State Parks, Forests, Nature Preserves, and Recreation Areas

Table 2-6 lists a number of parks, forests, nature preserves and other recreational areas within the counties included in the Little Calumet-Galien Watershed. Since all the special areas in these counties are listed, some of the areas may be located outside of the Little Calumet-Galien Watershed.

2.5 Surface Water Use Designations and Classifications

The following uses are designated by the Indiana Water Pollution Control Board (327 IAC 2-1-3 [327 IAC 2-1.5-5 for the Great Lakes system]):

- Surface waters of the state are designated for full-body contact recreation.
- All waters, except limited use waters, will be capable of supporting a well-balanced, warm water aquatic community and, where natural temperatures will permit, will be capable of supporting put-and-take trout fishing. All waters capable of supporting the natural reproduction of trout as of February 17, 1977, shall be so maintained.
- All waters, which are used for public or industrial water supply, must meet the standards for those uses at the point where water is withdrawn.
- All waters, which are used for agricultural purposes, must meet minimum surface water quality standards.
- All waters in which naturally poor physical characteristics (including lack of sufficient flow), naturally poor or reversible man-induced conditions, which came into existence prior to January 1, 1983, and having been established by use attainability analysis, public comment period, and hearing may qualify to be classified for limited use and must be evaluated for restoration and upgrading at each triennial review of this rule.
- All waters, which provide unusual aquatic habitat, which are an integral feature of an area of exceptional natural beauty or character, or which support unique assemblages of aquatic organisms may be classified for exceptional use (or designated as outstanding state resource waters in the Great Lakes system).

All waters of the state, at all times and at all places, including the mixing zone, shall meet the minimum conditions of being free from substances, materials, floating debris, oil, or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges (327 IAC 2-1-6 [327 IAC 2-1.5-8 for the Great Lakes system]):

- that will settle to form putrescent or otherwise objectionable deposits,
- that are in amounts sufficient to be unsightly or deleterious,
- that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance,
- which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans, or
- which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such degree as to create a nuisance, be unsightly, or otherwise impair designated uses.

2.5.1 Surface Water Classifications in the Little Calumet-Galien Watershed

The classification of waterbodies within the Great Lakes System discussed in Section 2.5 applies to all stream segments in the Little Calumet-Galien Watershed with the exception of the following:

Designated as salmonid waters and shall be capable of supporting a salmonid fishery (327 IAC 2-1.5-5; 1997):

- * Trail Creek and its tributaries downstream to Lake Michigan,
- * East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch,
- * Salt Creek above its confluence with the Little Calumet River,
- * Kintzele Ditch (Black Ditch) from Beverly Drive downstream to Lake Michigan,
- * The Galena River and its tributaries in LaPorte County,
- * The Indiana portion of the open waters of Lake Michigan,
- * Those waters designated by the Indiana department of natural resources for put-and-take trout fishing.

Designated as an outstanding state resource water (327 IAC 2-1.5-19; 1997):

- * The Indiana portion of the open waters of Lake Michigan,
- * All waters incorporated in the Indiana Dunes National Lakeshore.

There are no waterbodies in the Little Calumet-Galien Watershed designated for limited use by the Indiana Water Pollution Control Board in 327 IAC 2-1.5-19 (1997).

2.6 US Geological Survey Water Use Information for the Little Calumet-Galien Watershed

The U.S. Geological Survey's (USGS) National Water-Use Information Program is responsible for compiling and disseminating the nation's water-use data. The USGS works in cooperation with local, State, and Federal environmental agencies to collect water-use information at a site-specific level. USGS also compiles the data from hundreds of thousands of sites to produce water-use information aggregated up to the county, state, and national levels. Every five years, data at the state and hydrologic region level are compiled into a national water-use data system. Table 2-7 shows the USGS Water-Use information for the Little

Calumet-Galien Watershed for 1995 (USGS 2001).

2.7 Superfund Sites in the Little Calumet-Galien Watershed

Superfund is a program administered by the EPA to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. Before the Superfund Program was established in 1980, hazardous wastes were often left in the open, where they seeped into the ground, flowed into rivers and lakes, and contaminated soil and groundwater. Consequently, where these practices were intensive or continuous, there were uncontrolled or abandoned hazardous waste sites. These sites include abandoned warehouses, manufacturing facilities, processing plants, and landfills (USEPA 2002b).

There are six Superfund (CERCLA) sites listed in the Little Calumet-Galien Watershed:

- American Chemical Service, Inc. - Griffith, IN
- Lake Sandy Jo (M&M Landfill) - Gary, IN
- MIDCO I - Gary, IN
- MIDCO II - Gary, IN
- Ninth Avenue Dump - Gary, IN
- Waste, Inc., Landfill - Michigan City, IN

The Record of Decision (ROD) gives a detailed description of each site, including the media and contaminants involved. These are included in Appendix E. A seventh site, U.S. Smelter & Lead Refinery Inc. (East Chicago, IN), is a RCRA closure but has not been added to the National Priority List and no ROD is available.

Part I, Chapter 3: Causes and Sources of Water Pollution

A number of substances including nutrients, bacteria, oxygen-demanding wastes, metals, and toxic substances, cause water pollution. Sources of these pollution-causing substances are divided into two broad categories: point sources and nonpoint sources. Point sources are typically piped discharges from wastewater treatment plants, large urban and industrial stormwater systems, and other facilities. Nonpoint sources can include atmospheric deposition, groundwater inputs, and runoff from urban areas, agricultural lands and others. Chapter 3 includes the following:

Section 3.1 Causes of Pollution

Section 3.2 Point Sources of Pollution

Section 3.3 Nonpoint Sources of Pollution

3.1 Causes of Pollution

'Causes of pollution' refers to the substances which enter surface waters from point and nonpoint sources and result in water quality degradation and impairment. Major causes of water quality impairment include biochemical oxygen demand (BOD), nutrients, pesticides, toxicants (such as heavy metals, polychlorinated biphenyls [PCBs], chlorine, pH, ammonia, and cyanide), and *E. coli* bacteria. Table 3-1 provides a general overview of causes of impairment and the activities that may lead to their introduction into surface waters. Each of these causes is discussed in the following sections.

3.1.1 *E. coli* Bacteria

E. coli bacteria are associated with the intestinal tract of warm-blooded animals. They are widely used as an indicator of the potential presence of waterborne disease-causing (pathogenic) bacteria, protozoa, and viruses because they are easier and less costly to detect than the actual pathogenic organisms. The presence of waterborne disease-causing organisms can lead to outbreaks of such diseases as typhoid fever, dysentery, cholera, and cryptosporidiosis. The detection and identification of specific bacteria, viruses, and protozoa (such as *Giardia*, *Cryptosporidium*, and *Shigella*), require special sampling protocols and very sophisticated laboratory techniques which are not commonly available.

E. coli water quality standards have been established in order to ensure safe use of waters for water supplies and recreation. 327 IAC 2-1-6 Section 6(d) (327 IAC 2-1.5-8(e)(2) for Great Lakes system) states that *E. coli* bacteria, using membrane filter count (MF), shall not exceed 125 per 100 milliliters as a geometric mean based on not less than five samples equally spaced over a 30 day period nor exceed 235 per 100 milliliters in any one sample in a 30 day period.

E. coli bacteria may enter surface waters from nonpoint source runoff, but they also come from improperly treated discharges of domestic wastewater. Common potential sources of *E. coli* bacteria include leaking or failing septic systems, direct septic discharge, leaking sewer lines or pump station overflows, runoff from livestock operations, urban stormwater and wildlife. *E. coli* bacteria in treatment plant effluent are controlled through disinfection methods including chlorination (often followed by dechlorination), ozonation or ultraviolet light radiation.

E. coli is a significant source of pollution in the Little Calumet-Galien watershed. Five waterbodies are listed as impaired by *E. coli* contamination on the Indiana 303(d) list. These five waterbodies are scheduled for TMDL development from 2000-2004.

3.1.2 Toxic Substances

327 IAC 2-1-9(45) (327 IAC 2-1.5-2(84) for Great Lakes system) defines toxic substances as substances which are or may become harmful to plant or animal life or to food chains when present in sufficient concentrations or combinations. Toxic

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substances include, but are not limited to, those pollutants identified as toxic under Section 307 (a)(1) of the Clean Water Act. Standards for individual toxic substances are listed in 327 IAC 2-1-6 (327 IAC 2-1.5-8 for Great Lakes system). Toxic substances frequently encountered include chlorine, ammonia, organics (hydrocarbons and pesticides), heavy metals and pH. These materials are toxic to different organisms in varying amounts, and the effects may be evident immediately or may only be manifested after long-term exposure or accumulation in living tissue.

Whole effluent toxicity testing is required for major NPDES dischargers (discharge over 1 million gallons per day or population greater than 10,000). This test shows whether the effluent from a treatment plant is toxic, but it does not identify the specific cause of toxicity. If the effluent is found to be toxic, further testing is done to determine the specific cause. This follow-up testing is called a toxicity reduction evaluation. Other testing, or monitoring, done to detect aquatic toxicity problems include fish tissue analyses, chemical water quality sampling and assessment of fish community and bottom-dwelling organisms such as aquatic insect larvae. These monitoring programs are discussed in Chapter 4.

Each of the substances below can be toxic in sufficient quantity or concentration.

Metals

Municipal and industrial dischargers and urban runoff are the main sources of metal contamination in surface water. Indiana has stream standards for many heavy metals, but the most common ones in municipal permits are cadmium, chromium, copper, nickel, lead, mercury, and zinc. These standards are listed in 327 IAC 2-1-6 (327 IAC 2-1.5-8 for Great Lakes system). Point source discharges of metals are controlled through the National Pollution Discharge Elimination System (NPDES) permit process. Mass balance models are employed to determine allowable concentrations for a permit limit. Municipalities with significant industrial users discharging wastes to their treatment facilities limit the heavy metals from these industries through a pretreatment program. Source reduction and wastewater recycling at waste water treatment plants (WWTP) also reduces the amount of metals being discharged to a stream. Nonpoint sources of metal pollution are controlled through best management practices.

In Indiana, as well as many other areas of the country, mercury contamination in fish has caused the need to post widespread fish consumption advisories. The source of the mercury is unclear; however, atmospheric sources are suspected and are currently being studied.

Metals are a significant source of pollution in the Little Calumet-Galien watershed. There are fifteen waterbodies on Indiana's 303(d) list with impairments due to contamination of metals including mercury, lead, and copper. These fifteen waterbodies are scheduled for TMDL development from 1998-2012.

Polychlorinated biphenyls (PCBs)

Polychlorinated biphenyls (PCBs) were first created in 1881 and began to be commercially manufactured around 1929. Because of their fire-resistant and insulating properties, PCBs were widely used in transformers, capacitors, and in hydraulic and heat transfer systems. In addition, PCBs were used in products such as plasticizers, rubber, ink, and wax. In 1966, PCBs were first detected in wildlife, and were soon found to be ubiquitous in the environment (Bunce 1994). PCBs entered the environment through unregulated disposal of products such as waste oils, transformers, capacitors, sealants, paints, and carbonless copy paper. In 1977, production of PCBs in North America was halted. The PCB contamination present in our surface waters and environment today is the result of historical waste disposal practices.

There are thirteen waterbodies in the Little Calumet-Galien watershed on Indiana's 1998 Section 303(d) list due to impairment by PCBs. These segments are currently scheduled for TMDL development from 1998-2012.

Ammonia (NH₃)

Point source dischargers are one of the major sources of ammonia. In addition, discharge of untreated septic effluent, decaying organisms which may come from nonpoint source runoff and bacterial decomposition of animal waste also contribute to the level of ammonia in a waterbody. Standards for ammonia are listed in 327 IAC 2-1-6 (327 IAC 2-1.5-8 for Great Lakes system).

Ammonia is not a significant source of pollution in the Little Calumet-Galien watershed. There is only one waterbody in this

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watershed listed on Indiana's 303(d) list due to impairment by ammonia. This segment is currently undergoing TMDL development.

Pesticides

Pesticides include a broad array of chemicals used to control plant growth (herbicides), insects (insecticides), fungi (fungicides), and other organisms. Pesticides enter surface waters primarily through nonpoint source runoff from agricultural lands and urban areas. While some pesticides undergo biological degradation by soil and water bacteria, others are very resistant to degradation. Such nonbiodegradable compounds may become "fixed" or bound to clay particles and organic matter in the soil, making them less available. However, many pesticides are not permanently fixed by the soil. Instead they collect on plant surfaces and enter the food chain, eventually accumulating in wildlife such as fish and birds. Many pesticides have been found to negatively affect both humans and wildlife by damaging the nervous, endocrine, and reproductive systems or causing cancer (Kormondy 1996).

Pesticide contamination is due not only to current nonpoint sources of pesticides, but also to legacy pesticides, or those pesticides that are no longer being used but are still persistent in the environment. Thus, measurements of pesticide pollution may not be accurate estimates of the amount of pesticides currently being discharged into surface waters, but rather reflections of both past and present pesticide use.

Pesticides are a significant source of pollution in the Little Calumet-Galien watershed. There are seven waterbodies listed as impaired by pesticides on Indiana's 303(d) list. These seven waterbodies are scheduled for TMDL development from 1998-2004.

Cyanide

Cyanide is used in several manufacturing processes, including metal finishing and glass manufacturing, and consequently it may enter surface waters through industrial runoff. Cyanide ties up the hemoglobin sites that bind oxygen to red blood cells, resulting in oxygen deprivation. This condition is known as cyanosis and is characterized by a blue skin color. Cyanide also causes chronic effects on the thyroid and central nervous system (Davis & Cornwell 1998). Most water quality monitoring programs measure total cyanide. This may overestimate the threat posed by cyanide contamination however, as total cyanide is a waste product of wastewater treatment plants. The parameter of concern to human health is free cyanide, which is included in measurements of total cyanide but different methods must be used to measure it separately.

Cyanide is a significant source of pollution in the Little Calumet-Galien watershed. There are five waterbodies listed as impaired by cyanide pollution on the Indiana 303(d) list. These five segments are scheduled for TMDL development from 1998-2004.

3.1.3 Oxygen-Consuming Wastes

Oxygen-consuming wastes include decomposing organic matter or chemicals, which reduce dissolved oxygen in water through chemical reactions, creating what is known as biochemical oxygen demand (BOD). Raw domestic wastewater contains high concentrations of oxygen-consuming wastes that need to be removed from the wastewater before it can be discharged into a waterway. Maintaining a sufficient level of dissolved oxygen in the water is critical to most forms of aquatic life.

The concentration of dissolved oxygen in a water body is one indicator of the general health of an aquatic ecosystem. 327 IAC 2-1 Section 6(b)(3) states that concentrations of dissolved oxygen shall average at least five milligrams per liter per calendar day and shall not be less than four milligrams per liter at any time. Salmonid waters which support cold water fish have a higher dissolved oxygen requirement. In these waters, dissolved oxygen concentrations shall not be less than six milligrams per liter at any time and shall not be less than seven milligrams per liter in areas where spawning and imprinting occur during the season in which they occur. Dissolved oxygen concentrations in the open waters of Lake Michigan shall not be less than seven milligrams per liter at any time (327 IAC 2-1.5-8(d)(1)).

Dissolved oxygen concentrations are affected by a number of factors. Higher dissolved oxygen is produced by turbulent actions, such as waves, which mix air and water. Lower water temperature also generally allows for retention of higher dissolved oxygen concentrations. Low dissolved oxygen levels tend to occur more often in warmer, slow-moving waters. In general, the lowest dissolved oxygen concentrations occur during the warmest summer months and particularly during low flow periods.

Sources of dissolved oxygen depletion include wastewater treatment plant effluent, the decomposition of organic matter (such as

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leaves, dead plants and animals) and organic waste matter that is washed or discharged into the water. Sewage from human and household wastes is high in organic waste matter. Bacterial decomposition can rapidly deplete dissolved oxygen levels unless these wastes are adequately treated at a wastewater treatment plant. In addition, excess nutrients in a water body may lead to an over-abundance of algae and reduce dissolved oxygen in the water through algal respiration and decomposition of dead algae. Also, some chemicals may react with and bind up dissolved oxygen. Industrial discharges with oxygen-consuming wasteflow may be resilient instream and continue to use oxygen for a long distance downstream.

Three waterbodies in the Little Calumet-Galien watershed are on Indiana's 303(d) list for impairment due to oxygen-consuming wastes. These three segments are presently undergoing TMDL development.

3.1.4 Nutrients

The term "nutrients" in this Strategy refers to two major plant nutrients: phosphorus and nitrogen. These are common components of fertilizers, animal and human wastes, vegetation, and some industrial processes. Nutrients in surface waters come from both point and nonpoint sources. Nutrients are beneficial to aquatic life in small amounts. However, in over-abundance and under favorable conditions, they can stimulate algal blooms and excessive plant growth in quiet waters or low flow conditions. The algal blooms and excessive plant growth often reduce the dissolved oxygen content of surface waters through plant respiration and decomposition of dead algae and other plants. This is accentuated in hot weather and low flow conditions because of the reduced capacity of the water to retain dissolved oxygen.

There are no waterbodies in the Little Calumet-Galien watershed on Indiana's 303(d) list because of impairment due to nutrient pollution.

3.2 Point Sources of Pollution

As discussed previously, sources of water pollution are divided into two broad categories: point sources and nonpoint sources. This section focuses on point sources. Section 3.2.1 defines point sources and Section 3.2.2 discusses point sources in the Little Calumet-Galien Watershed.

3.2.1 Defining Point Sources

Point sources refer to discharges that enter surface waters through a pipe, ditch or other well-defined point of discharge. The term applies to wastewater and stormwater discharges from a variety of sources. Wastewater point source discharges include municipal (city and county) and industrial wastewater treatment plants and small domestic wastewater treatment systems that may serve schools, commercial offices, residential subdivisions and individual homes. Stormwater point source discharges include stormwater collection systems for medium and large municipalities which serve populations greater than 100,000 and stormwater discharges associated with industrial activity as defined in the Code of Federal Regulations (40 CFR 122.26(a)(14)). The primary pollutants associated with point source discharges are oxygen-demanding wastes, nutrients, sediment, color and toxic substances including chlorine, ammonia and metals.

Point source dischargers in Indiana must apply for and obtain a National Pollutant Discharge Elimination System (NPDES) permit from the state. Discharge permits are issued under the NPDES program, which is delegated to Indiana by the US Environmental Protection Agency (EPA). See Chapter 5 for a description of the NPDES program and permitting strategies.

3.2.2 Point Source Discharges in the Little Calumet-Galien Watershed

As of June 1999, there were 337 active NPDES permits within the Little Calumet-Galien watershed (Table 3-3, Figure 3-1). Of the 337 active NPDES permits, 31 are for major discharges (see Table 5-1 for a definition of a major discharge).

Another point source covered by NPDES permits is combined sewer overflows (CSO). A combined sewer system is a wastewater collection system that conveys sanitary wastewater (domestic, commercial and industrial wastewater) and stormwater through a single pipe system to a Publicly Owned Treatment Works. A CSO is the discharge from a combined sewer system at a point prior to the Publicly Owned Treatment Works. CSOs are point sources subject to NPDES permit requirements including both technology-based and water quality-based requirements of the Clean Water Act. Table 3-2 shows the CSOs in the Little Calumet-

Galien watershed.

In addition to the NPDES permitted dischargers in the watershed, there may be many unpermitted, illegal discharges to the Little Calumet-Galien watershed system. Illegal discharges of residential wastewater (septic tank effluent) to streams and ditches from straight pipe discharges and old inadequate systems are a problem within the watershed.

3.3 Nonpoint Sources of Pollution

Nonpoint source pollution refers to runoff that enters surface waters through stormwater runoff, contaminated ground water, snowmelt or atmospheric deposition. There are many types of land use activities that can serve as sources of nonpoint source pollution including land development, construction, mining operations, crop production, animal feeding lots, timber harvesting, failing septic systems, landfills, roads and paved areas. Stormwater from large urban areas (greater than 100,000 people) and from certain industrial and construction sites is technically considered a point source since NPDES permits are required for discharges of stormwater from these areas.

Sediment and nutrients are major pollution-causing substances associated with nonpoint source pollution. Others include *E. coli* bacteria, heavy metals, pesticides, oil and grease, and any other substance that may be washed off the ground or removed from the atmosphere and carried into surface waters. Unlike point source pollution, nonpoint pollution sources are diffuse in nature and occur at random time intervals depending on rainfall events. Below is a brief description of major areas of nonpoint sources of pollution in the Little Calumet-Galien watershed.

3.3.1 Agriculture

There are a number of activities associated with agriculture that can serve as potential sources of water pollution. Land clearing and tilling make soils susceptible to erosion, which can then cause stream sedimentation. Pesticides and fertilizers (including synthetic fertilizers and animal wastes) can be washed from fields or improperly designed storage or disposal sites. Construction of drainage ditches on poorly drained soils enhances the movement of oxygen-consuming wastes, sediment and soluble nutrients into groundwater and surface waters.

Concentrated animal operations can be a significant source of nutrients, biochemical oxygen demand and *E. coli* bacteria if wastes are not properly managed. Impacts can result from over-application of wastes to fields, from leaking lagoons and from flows of lagoon liquids to surface waters due to improper waste lagoon management. Also there are potential concerns associated with nitrate nitrogen movement through the soil from poorly constructed lagoons and from wastes applied to the soil surface.

Grassed waterways, conservation tillage, and no-till practices are several common practices used by many farmers to minimize soil loss. Maintaining a vegetated buffer between fields and streams is another excellent way to minimize sediment and nutrient loads to streams.

3.3.2 Urban/Residential

Runoff from urbanized areas, as a rule, is more localized and can often be more severe in magnitude than agricultural runoff. Any type of land-disturbing activity such as land clearing or excavation can result in soil loss and sedimentation. The rate and volume of runoff in urban areas is much greater due both to the high concentration of impervious surface areas and to storm drainage systems that rapidly transport stormwater to nearby surface waters. This increase in volume and rate of runoff can result in streambank erosion and sedimentation in surface waters.

Urban drainage systems, including curb and guttered roadways, also allow urban pollutants to reach surface waters quickly and with little or no filtering. Pollutants include lawn care pesticides and fertilizers, automobile fluids, lawn and household wastes, road salts, and *E. coli* bacteria (from animals and failing septic systems). Household hazardous wastes have the potential to severely contaminate the water if disposed of improperly by pouring down the drain or on the ground. The diversity of these pollutants makes it very challenging to attribute water quality degradation to any one pollutant.

Replacement of natural vegetation with pavement and removal of buffers reduces the ability of the watershed to filter pollutants before they enter surface waters. The chronic introduction of these pollutants and increased flow and velocity into streams results

in degraded waters. Many waters adjacent to urban areas are rated as biologically poor. This degradation also exists in lakes, which have been heavily influenced by adjacent urban development.

The population figures discussed in Section 2.3.2 are good indicators of where urban development and potential urban water quality impacts are likely to occur. Concentrated areas where urban development is high may lead to further water quality problems associated with the addition of impervious surfaces next to surface waters.

3.3.3 Onsite Wastewater Disposal

Septic systems contain all of the wastewater from a household or business. A complete septic system consists of a septic tank and an absorption field to receive effluent from the septic tank. The septic tank removes some wastes, but the soil absorption field provides further absorption and treatment. Septic systems can be a safe and effective method for treating wastewater if they are sized, sited, and maintained properly. However, if the tank or absorption field malfunction or are improperly placed, constructed or maintained, nearby wells and surface waters may become contaminated.

Some of the potential problems from malfunctioning septic systems include:

- Polluted groundwater: Pollutants in septic effluent include bacteria, nutrients, toxic substances, and oxygen-consuming wastes. Nearby wells can become contaminated by failing septic systems.
- Polluted surface water: Groundwater often carries the pollutants mentioned above into surface waters, where they can cause serious harm to aquatic ecosystems. Leaking septic tanks can also leak into surface waters through or over the soil. In addition, some septic tanks may directly discharge to surface waters.
- Risks to human health: Septic system malfunctions can endanger human health when they contaminate nearby wells, drinking water supplies, and fishing and swimming areas.

Pollutants associated with onsite wastewater disposal may also be discharged directly to surface waters through direct pipe connections between the septic system and surface waters (straight pipe discharge). However, 327 IAC 5-1-1.5 specifically states that "point source discharge of sewage treated or untreated, from a dwelling or its associated residential sewage disposal system, to the waters of the state is prohibited".

3.3.4 Construction

Construction activities that involve excavation, grading or filling can result in significant erosion and, consequently, sedimentation in streams, if not properly controlled. Sedimentation from developing urban areas can be a major source of pollution due to the cumulative number of acres disturbed in a watershed. Construction of single family homes in rural areas can also be a source of sedimentation when homes are placed in or near stream corridors.

As a pollution source, construction activities are typically temporary, but the impacts on water quality can be severe and long-lasting. Construction activities tend to be concentrated in the more rapidly developing areas of the watershed.

3.3.5 Degraded Wetlands

Healthy wetlands and riparian areas perform valuable water quality-related functions by filtering water and trapping sediments and pollutants. The ability of wetland and riparian areas to remove NPS pollutants from surface water runoff is determined by plant species composition, geochemistry and hydrogeomorphic characteristics. Any changes to these characteristics can affect the filtering capacities of these areas. Activities such as channelization, which modify the hydrology of floodplain wetlands, can alter the ability of these areas to retain sediment when they are flooded and result in erosion and a net export of sediment from the wetland (Reinelt and Horner 1990).

Management measures have been developed for the control of NPS pollution through the protection and restoration of wetlands and riparian areas and the use of vegetated treatment systems. Information on degraded wetlands as potential contributors to nonpoint source pollution and the management measures for NPS pollution abatement is available in the USEPA Draft Guidance

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entitled "National Management Measures to Protect and Restore Wetlands and Riparian Areas for the Abatement of Nonpoint Source Pollution" (USEPA 2001).

Part I, Chapter 4: Water Quality and Use Support Ratings in the Little Calumet-Galien Watershed

This section provides a detailed overview of water quality monitoring, water quality, and use support ratings in the Little Calumet-Galien watershed and includes the following:

Section 4.1 Water Quality Monitoring Programs

Section 4.2 Summary of Ambient Monitoring Data for the Little Calumet-Galien Watershed

Section 4.3 Fish Consumption Advisories

Section 4.4 Clean Water Act Section 305(b) Report

Section 4.5 Clean Water Act Section 305(b) Assessment and Use-Support: Methodology

4.1 Water Quality Monitoring Programs

This section discusses water quality monitoring programs. Specifically, Section 4.1.1 describes IDEM's Office of Water Quality monitoring programs and Section 4.1.2 discusses other monitoring efforts in the watershed.

4.1.1 Office of Water Quality Programs

The Water Quality Assessment Branch of the Office of Water Quality is responsible for assessing the quality of water in Indiana's lakes, rivers and streams. This assessment is performed by field staff from the Survey Section and the Biological Studies Section. Virtually every element of IDEM's surface water quality management program of IDEM is directly or indirectly related to activities currently carried out by this Branch. The biological and surface water monitoring activities identify stream reaches, watersheds or segments where physical, chemical and/or biological quality has been or would be impaired by either point or nonpoint sources. This information is used to help allocate waste loads equitably among various sources in a way that would ensure that water quality standards are met along stream reaches in each of the nearly 100 stream segments in Indiana.

The purpose of the Surveys Section is to provide the water quality and hydrological data required for the assessment of Indiana's waters by conducting Watershed/Basin Surveys and Stream Reach Surveys. In 1996, the Section began a five-year comprehensive study (Basin Monitoring Strategy) of the State's ten major watersheds. Information from these studies is being integrated with data from biological and nonpoint source studies as well as the Fixed Station Monitoring Program to make a major assessment of the State's waters. Such surveys determine the extent to which water quality standards are being met and whether the fishable, swimmable and water supply uses are being maintained.

Information derived from this strategy will contribute significantly to improved planning processes throughout the Office of Water Quality. This plan should initiate the development of interrelated action plans, which encompass the wide range of responsibilities, such as rule-making, permitting, compliance, nonpoint source issues, and wastewater treatment facility oversight.

The Biological Studies Section conducts studies of fish and macroinvertebrate communities as well as stream habitats to establish biological conditions to which other streams may be compared in order to identify impaired streams or watersheds. The Biological Studies Section also conducts fish tissue and sediment sampling to pinpoint sources of toxic and bioconcentrating substances. Fish tissue data serve as the basis for fish consumption advisories, which are issued, through the Indiana State Department of Health, to protect the health of Indiana citizens. This Section also participates in the development of site-specific water quality standards.

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The Biological Studies Section relies on the Volunteer Water Quality Monitoring Programs to provide additional data on lakes and wetlands that may not be sampling sites in the Monitoring Strategy. Volunteer-collected data provides IDEM scientists with an overall view of water quality trends and early warning of problems that may be occurring in a lake or wetland. If volunteers detect that a lake or wetland is severely degraded, professional IDEM scientists will conduct follow-up investigation.

4.1.2 Local Volunteer Monitoring Programs

There are numerous local volunteer monitoring programs actively working throughout the Little Calumet-Galien watershed. Almost all of these volunteer monitoring programs are conducted through schools and county Soil and Water Conservation Districts. The individual volunteer monitoring programs in the watershed receive support and guidance from Indiana WaterWatchers, IDNR's Hoosier Riverwatch, and various other groups. The main focus of the various watershed volunteer monitoring programs is education.

The following four volunteer monitoring programs are involved in conservation and/or education activities in the Little Calumet-Galien watershed:

Group Name: Beverly Shores Lakefront Modern Beach Ridge
Contact: Edwin Hartke
Contact Address: 611 N Walnut Grv
Bloomington, INDIANA 47405-2208
Contact Phone: 812-855-1353
Contact Email: ehartke@Indiana.edu
URL: <http://www.indiana.edu/~igs>
Activity: Watershed Alliance/Council

Group Name: Friends of McCoy's Creek
Contact: Scott King David Young
Contact Address: 306 Liberty
Buchanan, Michigan 49107
Contact Phone: 616 695-4413
Activity: Volunteer Monitoring
Description: Friends of McCoy's Creek cleans and monitors McCoy's Creek, one of southwestern Michigan's finest trout/salmon streams.

Group Name: Grand Calumet Task Force
Contact: Bowden Quinn
Contact Address: 2400 New York Ave.
Whiting, INDIANA 46394
Contact Phone: 219-473-4246
Contact Email: gctf@igc.org
URL: <http://www.grandcal.org>
Activity: Watershed Alliance/Council
Description: A not-for-profit community environmental organization working cooperatively to protect the Grand Calumet River and its surrounding urban ecosystem in Northwest Indiana.

Group Name: Save the Dunes Conservation Fund
Contact: Sandy Wilmore
Contact Address: 444 Barker Rd.
Michigan City, INDIANA 46360
Contact Phone: 219-879-3564
Contact Email: std@adsnet.com
URL: <http://www.savedunes.org>
Activity: Watershed Alliance/Council
Description: The Save the Dunes Conservation Fund was established in 1994 to restore and protect the environment of the Indiana Dunes. Among its activities the Conservation Fund has restored a foredune on Gary's Lake Michigan shoreline, has

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assisted the Minority Health Coalition of LaPorte County on projects in the area of a Superfund site, and has worked with teachers, individuals, and agencies to monitor the health of local streams and waterways.

Group Name: Wetlands Conservation Association

Contact: Allan Puplis

Contact Address: P.O. Box 133

Stevensville, MICHIGAN 49127-0133

Contact Phone: 616-429-1862

Activity: Other

Description: Educate the public to be able to protect and conserve area wetlands, streams and biodiversity. We monitor MDEQ wetland permit applications for public comment. We speak to kids in schools, we do road, beach, and stream cleanups. Our greatest accomplishment is working with USP& W to protect endangered species.

4.2 Summary of Ambient Monitoring Data for the Little Calumet-Galien Watershed

The fixed station-monitoring program managed by IDEM's Office of Water Quality has been monitoring surface water chemistry throughout the state since 1957. The data set from 1986 to 1995 was analyzed using the Seasonal Kendall test. This test deduces if a statistical change in the surface water chemistry occurred over a certain time period. The results of the Seasonal Kendall analysis for stations located in the Little Calumet-Galien watershed are provided in Table 4-1. The data collected from 1991 to 1997 from this monitoring program were also analyzed to determine benchmark characteristics. The results of the benchmark characteristic analysis for stations located in the Little Calumet-Galien watershed are provided in Appendix A. For a more in-depth discussion of this analysis, please refer to the 1997 Indiana Fixed Station Statistical Analysis (IDEM 1998b).

4.3 Fish Consumption Advisories

Since 1972, the Indiana Department of Natural Resources, the IDEM, and the Indiana State Department of Health (ISDH) have worked together to create the Indiana Fish Consumption Advisory (ISDH, IDNR, and IDEM 2001). Each year members from these three agencies meet to discuss the findings of recent fish monitoring data and to develop the new statewide fish consumption advisory.

The 2001 advisory is based on levels of PCBs and mercury found in fish tissue. Fish are tested regularly only in areas where there is suspected contamination. In each area, samples were taken of bottom-feeding fish, top-feeding fish, and fish feeding in between. Over 1,600 fish tissue samples collected throughout the state were analyzed for PCBs, pesticides, and heavy metals. Of those samples, the majority contained at least some mercury. However, not all fish tissue samples had mercury at levels considered harmful to human health. If they did, they are listed in Table 4-3. Because of past, widespread agricultural and industrial use of these materials, their great stability and persistence in the environment, and the potential for bioaccumulation, it is not surprising that concentrations exceeding safe levels have been found in some species. Criteria for placing fish on the Indiana Fish Consumption Advisory are developed from the Great Lakes Task Force risk-based approach.

Table 4-2 shows the ISDH definitions for each Advisory Group.

Table 4-3 shows the waterbodies in the Little Calumet-Galien Watershed that are under the 2001 fish consumption advisory.

4.4 Clean Water Act Section 305(b) Report

Section 305(b) of the Clean Water Act requires states to prepare and submit to the EPA a water quality assessment report of state water resources. A new surface water monitoring strategy for the Office of Water Quality was implemented in 1996 with the goal of monitoring all waters of the state by 2001 and reporting the assessments by 2003. Each year approximately 20 percent of the waterbodies in the state will be assessed and reported the following year. To date, one five-year monitoring cycle to survey the surface water quality of the State has been completed. The second survey cycle was begun in 2001. Appendix B contains the listing of the Little Calumet-Galien watershed waterbodies assessed, status of designated use support, probable causes of

impairment, and stream miles affected (IDEM 1998a). The methodologies of the Clean Water Act Section 305(b) assessment and use support ratings are discussed in Section 4.5.

4.5 Clean Water Act Section 305(b) Assessment and Use-Support: Methodology

The Office of Water Quality determines use support status for each stream and waterbody in accordance with the assessment guidelines provided by EPA (USEPA 1997). Results from four monitoring programs are integrated to provide an assessment for each stream and waterbody:

- Physical/chemical water column results,
- Benthic aquatic macroinvertebrate community assessments,
- Fish tissue and surficial aquatic sediment contaminant results, and
- *E. coli* monitoring results.

The assessment process was applied to each data sampling program. The individual assessments were integrated into an overall assessment for each waterbody by use designation: aquatic life support, fish consumption, and recreational use. River miles in a watershed appear as one waterbody while each lake in a watershed is reported as a separate waterbody.

Physical/chemical data for toxicants (total recoverable metals), conventional water chemistry parameters (dissolved oxygen, pH, and temperature), and bacteria (*E. coli*) were evaluated for exceedance of the Indiana Water Quality Standards (327 IAC 2-1-6). U.S. EPA 305(b) Guidelines were applied to sample results as indicated in Table 4-4 (U.S. EPA 1997).

Part I, Chapter 5: State and Federal Water Programs

This Chapter summarizes the existing point and nonpoint source pollution control programs available for addressing water quality problems in the Little Calumet-Galien watershed. Chapter 5 includes:

Section 5.1 Indiana Department of Environmental Management Water Quality Programs

Section 5.2 Indiana Department of Natural Resources Water Programs

Section 5.3 USDA/Natural Resources Conservation Service Water Programs

5.1 Indiana Department of Environmental Management Water Quality Programs

This Section describes the water quality programs managed by the Office of Water Quality within IDEM and includes:

Section 5.1.1 State and Federal Legislative Authorities for Indiana's Water Quality Program

Section 5.1.2 Indiana's Point Source Control Program

Section 5.1.3 Indiana's Nonpoint Source Control Programs

Section 5.1.4 Integrating Point and Nonpoint Source Pollution Control Strategies

Section 5.1.5 Potential Sources of Funding for Water Quality Projects

5.1.1 State and Federal Legislative Authorities for Indiana's Water Quality Program

Authorities for some of the programs and responsibilities carried out by the Office of Water Quality are derived from a number of federal and state legislative mandates outlined below. The major federal authorities for the state's water quality program are found in sections of the Clean Water Act. State authorities are from state statutes.

Federal Authorities for Indiana's Water Quality Program:

- The Clean Water Act Section 301 - Prohibits the discharge of pollutants into surface waters unless permitted by EPA.
- The Clean Water Act Section 303(c) - States are responsible for reviewing, establishing and revising water quality standards for all surface waters.
- The Clean Water Act Section 303(d) - Each state shall identify waters within its boundaries for which the effluent limits required by 301(b)(1)(A) and (B) are not stringent enough to protect any water quality standards applicable to such waters. Requires states to develop Total Maximum Daily Loads that set the maximum amount of pollution that a water body can receive without violating water quality standards.
- The Clean Water Act Section 305(b) - Each state is required to submit a biennial report to the EPA describing the status of surface waters in that state.

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- The Clean Water Act Section 319 - Each state is required to develop and implement a nonpoint source pollution management program.
- The Clean Water Act Section 402 - Establishes the National Pollutant Discharge Elimination System (NPDES) permitting program. Allows for delegation of permitting authority to qualifying states (which Indiana has received).
- The Clean Water Act Section 404/401 - Section 404 regulates the discharge of dredge and fill materials into navigable waters and adjoining wetlands. Section 401 requires the U.S. Army Corps of Engineers to receive a state Water Quality Certification prior to issuance a 404 permit.

State Authority for Indiana's Water Quality Program:

IC 13-13-5 Designation of Department for Purposes of Federal Law: Designates the Indiana Department of Environmental Management as the water pollution agency for Indiana for all purposes of the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) effective January 1, 1988, and the federal Safe Drinking Water Act (42 U.S.C. 300f through 300j) effective January 1, 1988. The state rulemaking authority for water is the Water Pollution Control Board. The board holds monthly meetings that are open to the public. Information on agendas, draft rules, and meeting notices can be obtained by contacting IDEM (see Appendix C).

5.1.2 Indiana's Point Source Control Program

The State of Indiana's efforts to control the direct discharge of pollutants to waters of the State were inaugurated by the passage of the Stream Pollution Control Law of 1943. The vehicle currently used to control direct discharges to waters of the State is the National Pollutant Discharge Elimination System (NPDES) permit program, authorized by the Federal Water Pollution Control Act Amendments of 1972 (also referred to as the Clean Water Act). The State of Indiana was granted primacy from U.S. EPA to issue NPDES permits on January 1, 1975 through a Memorandum of Agreement. These permits place limits on the amount of pollutants that may be discharged to waters of the State by each discharger. Limits are set at levels protective of both the aquatic life in the waters which receive the discharge and human health.

U.S. EPA, Region V, has oversight authority for Indiana's NPDES permits program. Under terms of the Memorandum of Agreement, Region V has the right to comment on all draft Major discharger permits. In addition to NPDES, the Office of Water Quality Permits Section has a pretreatment group which regulates municipalities in their development of municipal pretreatment programs and indirect discharges, or those discharges of process wastewater to municipal sewage treatment plants through Industrial Waste Pretreatment permits, and regulates Stormwater, Combined Sewer Overflow (CSO), and variance requests through a special projects group currently known as the Urban Wet Weather Group. Land Application of waste treatment plant sludge is no longer a part of the Office of Water Quality but is now a part of the Office of Land Quality (formerly Office of Solid and Hazardous Waste).

The purpose of the NPDES permit is to control the point source discharge of pollutants into the waters of the State such that the quality of the water of the State is maintained in accordance with the standards contained in 327 IAC 2. The NPDES permit requirements must ensure that the minimum amount of control is imposed upon any new or existing point source through the application of technology-based treatment requirements contained in 327 IAC 5-5-2. According to 327 IAC 5-2-2, "any discharge of pollutants into waters of the State as a point source discharge, except for exclusions made in 327 IAC 5-2-4, is prohibited unless in conformity with a valid NPDES permit obtained prior to discharge." This is the most basic principal of the NPDES permit program.

There are several different types of permits that are issued in the NPDES permitting program. Table 5-1 lists and describes the various permits. The majority of NPDES permits have existed since 1974. This means that most of the permit writing is for permit renewals. Approximately 10 percent of each year's workload is attributed to new permits, modifications and requests for estimated limits. NPDES permits are designed to be re-issued every five years but are administratively extended in full force and effect indefinitely if the permittee applies for a renewal before the current permit expires.

The federal Clean Water Act Section 104(b)(3) is the authority for NPDES-related State Program Grants. The Section 104(b)(3) program provides for developing, implementing and demonstrating new concepts or requirements that will improve the

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effectiveness of the NPDES permit program. A project proposed for assistance by this program should deal predominantly with water pollution sources and activities regulated by the NPDES program and produce a strong, beneficial value for the statewide NPDES permit program. Organizations eligible for Section 104(b)(3) funding include State water pollution control agencies, interstate agencies, Tribes, colleges and universities, and other public or nonprofit organizations. For-profit entities, private associations and individuals are not eligible to receive this assistance. The Section 104(b)(3) grant program is administered by the Watershed Management Section within the Planning Branch of the IDEM Office of Water Quality.

5.1.3 Nonpoint Source Control Programs

Nonpoint source (NPS) pollution is so named because the pollutants do not originate at single point sources, such as industrial and municipal waste discharge pipes. Instead, NPS pollutants are carried over fields, lawns, and streets by rainwater, wind, or snowmelt. This runoff may carry with it such things as fertilizer, road salt, sediment, motor oil, or pesticides. These pollutants either enter lakes and streams or seep into groundwater. While some NPS pollution is naturally occurring, most of it is a result of human activities.

Reducing NPS pollution requires careful attention to land use management and local geographic and economic conditions. The state's NPS Program, administered by the IDEM Office of Water Quality's Watershed Management Section, focuses on the assessment and prevention of NPS water pollution. The program also provides for education and outreach in order to improve the way land is managed. Through the use of federal funding for the installation of best management practices (BMPs), the development of watershed management plans, and the implementation of watershed restoration pollution prevention activities, the NPS Program reaches out to citizens so that land is managed in such a way that less pollution is generated.

While a number of agencies and organizations currently have their own programs for addressing specific NPS issues, overall NPS coordination is being aided through the consolidated NPS Management Plan that was developed in the early stages of the Program's formation. The NPS Management Plan was prepared in 1989, partially based on findings from the NPS Assessment Report, which was also completed that year. The NPS Management Plan was updated and received EPA approval in 1999. Some of the objectives of the Management Plan include the education of land users and the reduction and remediation of NPS pollution caused by erosion and sedimentation of forested and agricultural lands and urban runoff. Other objectives address pesticide and fertilizer use, land application of sludge, animal waste practices, past and present mining practices, on-site sewage disposal, and atmospheric deposition.

The many nonpoint source projects funded through the Office of Water Quality are a combination of local, regional, and statewide efforts sponsored by various public and not-for-profit organizations. The emphasis of these projects has been on the local, voluntary implementation of NPS water pollution controls. Since the inception of the program in the late 1980s, it has utilized approximately \$23 million of federal funds for the development of over 299 projects.

The federal Clean Water Act contains nonpoint source provisions in several sections of the Act including the Section 319 Nonpoint Source Program, the Section 314 Clean Lakes Program (no longer funded), and the Section 205(j) Water Quality Planning Program. The Section 319 program provides for various voluntary projects throughout the state to prevent water pollution and also provides for assessment and management plans related to water bodies in Indiana impacted by NPS pollution. Section 314 has assessment provisions that assist in determining the nonpoint and point source water quality impacts on lakes and provides recommendations for improvements, but it is currently not funded by Congress. Section 205(j) provides for planning activities relating to the improvement of water quality from nonpoint and point sources by making funding available to municipal and county governments, regional planning commissions, and other public organizations. For-profit entities, non-profit organizations, private associations, and individuals are not eligible for funding through Section 205(j).

The Watershed Management Section within the Planning Branch of the Office of Water Quality provides for the administration of the Section 319 funding source for the NPS-related projects, as well as Section 205(j) grants. Clean Water Act Section 319(h) grant monies are made available to the states on an annual basis by EPA. Agencies and organizations in the state that deal with NPS problems submit proposals to the Office of Water Quality each year for use of these funds in various projects.

One of the most important aspects of all NPS pollution prevention programs is the emphasis on the watershed approach to these programs. This calls for users in the watershed to become involved in the planning and implementation of practices which are designed to prevent pollution. By looking at the watershed as a whole, all situations causing the degradation of water quality will be addressed, not just a few. Appendix C lists the conservation partners and local stakeholders located in the Little Calumet-Galien watershed.

5.1.4 Integrating Point and Nonpoint Source Pollution Control Strategies

Two key long-term objectives of watershed management are integrating point and nonpoint source pollution controls and determining the amount and location of the remaining assimilative capacity in a watershed. The information is used for a number of purposes, including: determining if and where new or expanded municipal or industrial wastewater treatment facilities can be allowed; setting the recommended treatment level at these facilities; and identifying where point and nonpoint source pollution controls must be implemented to restore capacity and maintain water quality standards.

Total Maximum Daily Loads

The Clean Water Act mandates an integrated point and nonpoint source pollution control approach. This approach, called a total maximum daily load (TMDL), uses the concept of determining the total pollutant loading from point and nonpoint sources that a waterbody can assimilate while still maintaining its designated use (maintaining water quality standards). The U.S. EPA is responsible for ensuring that TMDLs are completed by States and for approving the completed TMDLs.

Under the TMDL approach, waterbodies that do not meet water quality standards are identified. States establish priorities for action, and then determine reductions in pollutant loads or other actions needed to meet water quality goals. The approach is flexible and promotes a watershed approach driven by local needs and directed by the State's list of priority waterbodies. The overall goal in developing the TMDL is to establish the management actions on point and nonpoint sources of pollution necessary for a waterbody to meet water quality standards.

The IDEM Office of Water Quality has reorganized its work activities around a five-year rotating basin schedule. The waters of the state have been grouped geographically into major river basins, and water quality data and other information will be collected and analyzed from each basin, or group of basins, once every five years. The schedule for implementing the TMDL Strategy is proposed to follow this rotating basin plan to the extent possible. Supplemental data collection (i.e. collection during a year other than the one prescribed in the Surface Water Quality Monitoring Strategy) may also be required to complete the TMDL process. The TMDL Strategy discusses activities to be accomplished in three phases. Phase One involves planning, sampling and data collection and will take place the first year. Phase Two involves TMDL development and will occur in the second year, and Phase Three is the TMDL implementation and will occur the third year. It is expected that some phases, especially implementation of TMDLs (Phase Three) in the basin(s), may take more than one year to fully accomplish.

In Phase Three, the TMDL scenario chosen in conjunction with watershed stakeholders during Phase Two will be used to develop a plan to implement the TMDL. During this process, stakeholder participation will be essential. The Basin Coordinator, in conjunction with the stakeholder groups, will develop a plan to implement the TMDL. Once the draft plan has been finalized through comments from stakeholder groups and IDEM, the plan becomes 'draft-final' and open to public review. Public meetings will be held in affected areas to solicit comments.

5.1.5 Potential Sources of Funding for Water Quality Projects

There are numerous sources of funding for all types of water quality projects. The sources of funding include federal and state agencies, nonprofits, and private funding. Funds may be loans, cost share projects, or grants. Section 319(h) grants and other funding sources are discussed below.

If a local government, environmental group, university researcher, or other individual or agency wants to find funding to address a local water quality problem, it is well worth the time to prepare a thorough but concise proposal and submit it to applicable funding agencies. Even if a project is not funded, follow-up should be done to determine what changes may be needed in order to make the application more competitive.

Section 319(h) Grants

EPA offers Clean Water Act Section 319(h) grant moneys to the state on an annual basis. These grants must be used to fund projects that address nonpoint source pollution issues. Some projects which the Office of Water Quality has funded with this money in the past include best management practice (BMP) demonstrations, watershed water quality improvements, data management, educational programs, modeling, stream restoration, and riparian buffer establishment. Projects are usually two to

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three years in length. Section 319(h) grants are intended to be used for project start-up, not as a continuous funding source. Units of government, nonprofit groups, and universities in the state that have expertise in nonpoint source pollution problems are invited to submit Section 319(h) proposals to the Office of Water Quality

Office of Water Quality staff review proposals for minimum 319(h) eligibility criteria such as:

- Does it support the state NPS Management Program objectives?
- Does the project address targeted, high priority watersheds?
- Are there sufficient non-federal cost-share matching funds available (25% of project costs, either cash or in-kind services)?
- Are measurable outputs identified?
- Is monitoring required? Is there a Quality Assurance/Quality Control plan for monitoring?
- If a Geographical Information System/Global Positioning System is used, is it compatible with that of the state?
- Is there a commitment for educational activities and a final report?
- Are upstream sources of NPS pollution addressed?
- Are local stakeholders involved in the project?

Office of Water Quality staff separately review and rank each proposal which meets the minimum 319(h) eligibility criteria. In their review, members consider such factors as: technical soundness; likelihood of achieving water quality results; degree of balance lent to the statewide NPS Program in terms of project type; and competence/reliability of contracting agency. They then convene to discuss individual project merits, to pool all rankings and to arrive at final rankings for the projects. Comments are also sought from outside experts in other governmental agencies, nonprofit groups, and universities. The Office of Water Quality seeks a balance between geographic regions of the state and types of projects. All proposals that rank above the funding target are included in the annual grant application to EPA, with EPA reserving the right to make final changes to the list. Actual funding depends on approval from EPA and yearly congressional appropriations.

To obtain more information about applying for a Section 319(h) grant, contact:

IDEM Office of Water Quality
Watershed Management Section
100 N. Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015
(317) 233-8803

Other Sources of Funding

Besides Section 319(h) funding, there are numerous sources of funding for all types of water quality projects. The sources of funding include federal and state agencies, nonprofit, and private funding. Funds may be loans, cost shares, or grants. Appendix D provides a summary list of agencies and funding opportunities.

5.2 Indiana Department of Natural Resources Water Programs

5.2.1 Division of Soil Conservation

The Division of Soil Conservation's mission is to ensure the protection, wise use, and enhancement of Indiana's soil and water resources. The Division's employees are part of Indiana's Conservation Partnership, which includes the 92 soil and water conservation districts (SWCDs), the USDA Natural Resources Conservation Service, and the Purdue University Cooperative Extension Service. Working together, the partnership provides technical, educational, and financial assistance to citizens to solve erosion and sediment-related problems occurring on the land or impacting public waters.

The Division administers the Clean Water Indiana soil conservation and water quality protection program under guidelines established by the State Soil Conservation Board, primarily through the local SWCDs in direct service to landusers. The Division staff includes field-based resource specialists who work closely with landusers, assisting in the selection, design, and installation of practices to reduce soil erosion on agricultural land. The Stormwater and Sediment Control Program works primarily with developers, contractors, realtors, property holders and others to address erosion and sediment concerns on non-agricultural lands, especially those undergoing development.

The Lake and River Enhancement (LARE) program utilizes a watershed approach to reduce non-point source sediment and nutrient pollution of Indiana's and adjacent states' surface waters to a level that meets or surpasses state water quality standards. To accomplish this goal, LARE provides technical and financial assistance to local entities for qualifying projects that improve and maintain water quality in public access lakes, rivers, and streams.

Hoosier Riverwatch is a water quality monitoring initiative which aims to increase public awareness of water quality issues and concerns through hands-on training of volunteers in stream monitoring and cleanup activities. Hoosier Riverwatch collaborates with agencies and volunteers to educate local communities about the relationship between land use and water quality and to provide water quality information to citizens and governmental agencies working to protect Indiana's rivers and streams.

5.2.2 Division of Water

The IDNR Division of Water (DOW) is charged by the State of Indiana to maintain, regulate, collect data on, and evaluate Indiana's surface and ground water resources.

The Engineering Branch of the DOW includes Dam and Levee Safety, Project Development, Surveying, Drafting, and Computer Services. The Dam and Levee Safety Section performs geotechnical and hydraulic evaluation on existing and proposed dams and levees throughout the State. The Project Development Section provides technical support to locally funded water resource projects along with engineering leadership and construction management to State-funded water resource projects. The remaining sections provide support services to all Sections within the DOW such as reservoir depth mapping, topographic mapping, highwater marks, design of publications and brochures, and computer procurement and maintenance.

The Planning Branch of the DOW consists of Basin Studies, Coastal Coordination, Floodplain Management, Ground Water, Hydrology and Hydraulics, and Water Rights. Basin Studies are comprehensive reports on surface- and ground-water availability and use. Coastal Coordination is a communication vehicle to address Lake Michigan's diverse shoreline issues. Floodplain Management involves various floodplain management aspects including coordination with the National Flood Insurance Program and with State and Federal Emergency Management agencies during major flooding events. The Ground Water Section maintains the water-well record computer database and publishes reports and maps on the groundwater resource for the State. The Hydrology and Hydraulics Section develops and reviews floodplain mapping and performs hydrologic studies and modeling. The Water Rights Section investigates and mediates groundwater/surface water rights issues, licenses water-well drillers, and develops well construction and abandonment procedures.

The Regulations Branch of DOW is made up of Stream Permits, Lake Permits, Permit Administration, Public Assistance, and Legal Counsel. The Stream Permits Section is responsible for reviewing permit applications for construction activity in the 100 year regulatory floodway along Indiana's waterways. The Lake Permits Section reviews construction projects at or below the

legal lake level for all of Indiana's public freshwater lakes. Permit Administration Section provides administrative support to Branch staff, maintains the application database, and coordinates the application review process with other Divisions. The Public Assistance Section provides technical assistance on possible permit applications on proposed construction projects, investigates and mediates unpermitted construction activities and in some cases, with the support of Legal Counsel, pursues legal action for violation of State laws.

5.3 USDA/Natural Resources Conservation Service Water Quality Programs

While there are a variety of USDA programs available to assist people with their conservation needs, the following assistance programs are the principal programs available.

Conservation of Private Grazing Land Initiative (CPGL)

The Conservation of Private Grazing Land initiative will ensure that technical, educational, and related assistance is provided to those who own private grazing lands. It is not a cost-share program. This technical assistance will offer opportunities for: better grazing land management; protecting soil from erosive wind and water; using more energy efficient ways to produce food and fiber; conserving water; providing habitat for wildlife; sustaining forage and grazing plants; using plants to sequester greenhouse gases and increase soil organic matter; and using grazing lands as a source of biomass energy and raw materials for industrial products.

Conservation Reserve Program (CRP)

NRCS provides technical assistance to landowners interested in participating in the Conservation Reserve Program administered by the USDA Farm Service Agency. The Conservation Reserve Program reduces soil erosion, protects the Nation's ability to produce food and fiber, reduces sedimentation in streams and lakes, improves water quality, establishes wildlife habitat, and enhances forest and wetland resources. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filterstrips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost-share funding is provided to establish the vegetative cover practices.

Conservation Technical Assistance (CTA)

The purpose of the CTA program is to assist landusers, communities, units of state and local government, and other Federal agencies in planning and implementing conservation systems. The purpose of the conservation systems is to reduce erosion, improve soil and water quality, improve and conserve wetlands, enhance fish and wildlife habitat, improve air quality, improve pasture and range condition, reduce upstream flooding, and improve woodlands.

One objective of the program is to assist individual landusers, communities, conservation districts, and other units of State and local government and Federal agencies to meet their goals for resource stewardship and assist individuals in complying with State and local requirements. NRCS assistance to individuals is provided through conservation districts in accordance with the Memorandum of Understanding signed by the Secretary of Agriculture, the Governor of the State, and the conservation district. Assistance is provided to landusers voluntarily applying conservation practices and to those who must comply with local or State laws and regulations.

Another objective is to provide assistance to agricultural producers to comply with the highly erodible land (HEL) and wetland (Swampbuster) provisions of the 1985 Food Security Act as amended by the Food, Agriculture, Conservation and Trade Act of 1990 (16 U.S.C. 3801 et. seq.), the Federal Agriculture Improvement and Reform Act of 1996, and wetlands requirements of Section 404 of the Clean Water Act. NRCS makes HEL and wetland determinations and helps landusers develop and implement conservation plans to comply with the law. The program also provides technical assistance to participants in USDA cost-share and conservation incentive programs.

NRCS collects, analyzes, interprets, displays, and disseminates information about the condition and trends of the Nation's soil

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and other natural resources so that people can make good decisions about resource use and about public policies for resource conservation. They also develop effective science-based technologies for natural resource assessment, management, and conservation.

Environmental Quality Incentives Program (EQIP)

The Environmental Quality Incentives Program provides technical, educational, and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with Federal, State, and tribal environmental laws, and encourages environmental enhancement. The program is funded through the Commodity Credit Corporation. The purposes of the program are achieved through the implementation of a conservation plan, which includes structural, vegetative, and land management practices on eligible land. Five to ten year contracts are made with eligible producers. Cost-share payments may be made to implement one or more eligible structural or vegetative practices, such as animal waste management facilities, terraces, filter strips, tree planting, and permanent wildlife habitat. Incentive payments can be made to implement one or more land management practices, such as nutrient management, pest management, and grazing land management.

Fifty percent of the funding available for the program is targeted at natural resource concerns relating to livestock production. The program is carried out primarily in priority areas that may be watersheds, regions, or multi-state areas, and for significant statewide natural resource concerns that are outside of geographic priority areas.

Small Watershed Program and Flood Prevention Program (WF 08 or FP 03)

The Small Watershed Program works through local government sponsors and helps participants solve natural resource and related economic problems on a watershed basis. Projects include watershed protection, flood prevention, erosion and sediment control, water supply, water quality, fish and wildlife habitat enhancement, wetlands creation and restoration, and public recreation in watersheds of 250,000 or fewer acres. Both technical and financial assistance are available.

Watershed Surveys and Planning

The Watershed and Flood Prevention Act, P.L. 83-566, August 4, 1954, (16 U.S.C. 1001-1008) authorized this program. Prior to fiscal year 1996, small watershed planning activities and the cooperative river basin surveys and investigations authorized by Section 6 of the Act were operated as separate programs. The 1996 appropriations act combined the activities into a single program entitled the Watershed Surveys and Planning program. Activities under both programs are continuing under this authority.

The purpose of the program is to assist Federal, State, and local agencies and tribal governments to protect watersheds from damage caused by erosion, floodwater, and sediment and to conserve and develop water and land resources. Resource concerns addressed by the program include water quality, opportunities for water conservation, wetland and water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for fish, wildlife, and forest-based industries.

Types of surveys and plans include watershed plans, river basin surveys and studies, flood hazard analyses, and floodplain management assistance. The focus of these plans is to identify solutions that use land treatment and non-structural measures to solve resource problems.

Wetlands Reserve Program (WRP)

The Wetlands Reserve Program is a voluntary program to restore wetlands. Participating landowners can establish conservation easements of either permanent or 30 year duration, or can enter into restoration cost-share agreements where no easement is involved. In exchange for establishing a permanent easement, the landowner receives payment up to the agricultural value of the land and 100 percent of the restoration costs for restoring the wetlands. The 30 year easement payment is 75 percent of what would be provided for a permanent easement on the same site and 75 percent of the restoration cost. The voluntary agreements are for a minimum 10 year duration and provide for 75 percent of the cost of restoring the involved wetlands. Easements and restoration cost-share agreements establish wetland protection and restoration as the primary land use for the duration of the

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easement or agreement. In all instances, landowners continue to control access to their land.

Wildlife Habitat Incentives Program (WHIP)

The Wildlife Habitat Incentives Program provides financial incentives to develop habitat for fish and wildlife on private lands. Participants agree to implement a wildlife habitat development plan and USDA agrees to provide cost-share assistance for the initial implementation of wildlife habitat development practices. USDA and program participants enter into a cost-share agreement for wildlife habitat development. This agreement generally lasts a minimum of 10 years from the date that the contract is signed.

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Part I Tables

TABLE 0-1: WATERS OF THE LITTLE CALUMET-GALIEN ON INDIANA'S 1998 303(D) LIST

ID	Waterbody	Parameter of Concern	Priority for TMDL development
ILHAA01_HAA 01-1998	CALUMET R	AMMONIA METALS NUTRIENTS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS	34
ILHAA01_HAA 02-1998	CALUMET R	AMMONIA METALS NUTRIENTS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS	34
ILRHA-1998	WOLF	NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SUSPENDED SOLIDS NOXIOUS AQUATIC PLANTS	34
IN-0001BIOTA- 1998	BEAVER DAM DITCH	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0002BIOTA- 1998	BURNS DITCH	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0002ECOLI- 1998	BURNS DITCH	E. COLI	2000-2004
IN-0002FCMRC- 1998	BURNS DITCH	FCA - MERCURY	2010-2012
IN-0002FCPCB- 1998	BURNS DITCH	FCA - PCBS	2010-2012
IN-0002LEAD-	BURNS DITCH	LEAD	2000-2004

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
1998			
IN-0002PESTI-1998	BURNS DITCH	PESTICIDES	2000-2004
IN-0005BIOTA-1998	DEEP RIVER	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0006BIOTA-1998	DUNES CREEK	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0008BIOTA-1998	GRAND CALUMET RIVER (EAST BRANCH)	IMPAIRED BIOTIC COMMUNITIES	1998-2000
IN-0008COPPR-1998	GRAND CALUMET RIVER (EAST BRANCH)	COPPER	1998-2000
IN-0008CYAND-1998	GRAND CALUMET RIVER (EAST BRANCH)	CYANIDE	1998-2000
IN-0008FCMRC-1998	GRAND CALUMET RIVER (EAST BRANCH)	FCA - MERCURY	1998-2000
IN-0008FCPCB-1998	GRAND CALUMET RIVER (EAST BRANCH)	FCA - PCBS	1998-2000
IN-0008LEAD-1998	GRAND CALUMET RIVER (EAST BRANCH)	LEAD	1998-2000
IN-0008OILGR-1998	GRAND CALUMET RIVER (EAST BRANCH)	OIL AND GREASE	1998-2000
IN-0008PESTI-1998	GRAND CALUMET RIVER (EAST BRANCH)	PESTICIDES	1998-2000
IN-0009AMMON-1998	GRAND CALUMET RIVER (WEST BRANCH)	AMMONIA	1998-2000
IN-0009BIOTA-1998	GRAND CALUMET RIVER (WEST BRANCH)	IMPAIRED BIOTIC COMMUNITIES	1998-2000
IN-0009CHLRD-1998	GRAND CALUMET RIVER (WEST BRANCH)	CHLORIDES	1998-2000

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
IN-0009CYAND-1998	GRAND CALUMET RIVER (WEST BRANCH)	CYANIDE	1998-2000
IN-0009DISOX-1998	GRAND CALUMET RIVER (WEST BRANCH)	DISSOLVED OXYGEN	1998-2000
IN-0009FCMRC-1998	GRAND CALUMET RIVER (WEST BRANCH)	FCA - MERCURY	1998-2000
IN-0009FCPCB-1998	GRAND CALUMET RIVER (WEST BRANCH)	FCA - PCBS	1998-2000
IN-0009LEAD-1998	GRAND CALUMET RIVER (WEST BRANCH)	LEAD	1998-2000
IN-0009PESTI-1998	GRAND CALUMET RIVER (WEST BRANCH)	PESTICIDES	1998-2000
IN-0010FCPCB-1998	GRAND CALUMET RIVER LAGOONS / MARQUETTE PARK LAGOON	FCA - PCBS	1998-2000
IN-0011DISOX-1998	INDIANA HARBOR CANAL (IHC)	DISSOLVED OXYGEN	1998-2000
IN-0011FCMRC-1998	INDIANA HARBOR CANAL (IHC)	FCA - MERCURY	1998-2000
IN-0011FCPCB-1998	INDIANA HARBOR CANAL (IHC)	FCA - PCBS	1998-2000
IN-0011LEAD-1998	INDIANA HARBOR CANAL (IHC)	LEAD	1998-2000
IN-0011PESTI-1998	INDIANA HARBOR CANAL (IHC)	PESTICIDES	1998-2000
IN-0012BIOTA-1998	INDIANA HARBOR CANAL (LAKE GEORGE BRANCH OF)	IMPAIRED BIOTIC COMMUNITIES	1998-2000
IN-0012DISOX-1998	INDIANA HARBOR CANAL (LAKE GEORGE BRANCH OF)	DISSOLVED OXYGEN	1998-2000
IN-0012FCMRC-1998	INDIANA HARBOR CANAL (LAKE GEORGE BRANCH OF)	FCA - MERCURY	1998-2000
IN-0012FCPCB-1998	INDIANA HARBOR CANAL (LAKE GEORGE BRANCH OF)	FCA - PCBS	1998-2000

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
IN-0012OILGR-1998	INDIANA HARBOR CANAL (LAKE GEORGE BRANCH OF)	OIL AND GREASE	1998-2000
IN-0012PESTI-1998	INDIANA HARBOR CANAL (LAKE GEORGE BRANCH OF)	PESTICIDES	1998-2000
IN-0015FCPCB-1998	LAKE GEORGE	FCA - PCBS	2010-2012
IN-0017ECOLI-1998	LAKE MICHIGAN	E. COLI	2000-2004
IN-0017FCMRC-1998	LAKE MICHIGAN	FCA - MERCURY	2010-2012
IN-0017FCPCB-1998	LAKE MICHIGAN	FCA - PCBS	2010-2012
IN-0021CYAND-1998	LITTLE CALUMET RIVER	CYANIDE	2000-2004
IN-0021ECOLI-1998	LITTLE CALUMET RIVER	E. COLI	2000-2004
IN-0021FCMRC-1998	LITTLE CALUMET RIVER	FCA - MERCURY	2010-2012
IN-0021FCPCB-1998	LITTLE CALUMET RIVER	FCA - PCBS	2010-2012
IN-0021PESTI-1998	LITTLE CALUMET RIVER	PESTICIDES	2000-2004
IN-0022FCMRC-1998	LITTLE CALUMET RIVER	FCA - MERCURY	2010-2012
IN-0022FCPCB-1998	LITTLE CALUMET RIVER	FCA - PCBS	2010-2012
IN-0024BIOTA-1998	LITTLE CALUMET RIVER	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0024CYAND-1998	LITTLE CALUMET RIVER	CYANIDE	2000-2004
IN-0024FCMRC-1998	LITTLE CALUMET RIVER	FCA - MERCURY	2010-2012

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
IN-0024FCPCB-1998	LITTLE CALUMET RIVER	FCA - PCBS	2010-2012
IN-0024PESTI-1998	LITTLE CALUMET RIVER	PESTICIDES	2000-2004
IN-0029BIOTA-1998	NILES DITCH	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0034ECOLI-1998	SALT CREEK	E. COLI	2000-2004
IN-0037CYAND-1998	TRAIL CREEK	CYANIDE	2000-2004
IN-0037ECOLI-1998	TRAIL CREEK	E. COLI	2000-2004
IN-0037FCMRC-1998	TRAIL CREEK	FCA - MERCURY	2010-2012
IN-0037FCPCB-1998	TRAIL CREEK	FCA - PCBS	2010-2012
IN-0038BIOTA-1998	TURKEY CREEK	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0039FCPCB-1998	WOLF LAKE	FCA - PCBS	2010-2012
MI083301A-1998	GALIEN RIVER	E. COLI PATHOGENS	
MI083301D-1998	DEER CREEK	ALGAE BACTERIAL SLIMES MACROINVERTEBRATE COMMUNITY RATED POOR PATHOGENS	
MI083301E-1998	SAWYER CREEK	MACROINVERTEBRATE COMMUNITY RATED POOR	
MI083301F-1998	GALIEN RIVER, E. BR.	ALGAE NUTRIENTS	

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
MI083301G-1998	GALIEN RIVER	CHLORDANE FCA (PCBS)	
MI083301J-1998	BLOOD RUN	DEGRADED HABITAT SEDIMENTATION	
ILGI02_GI 04-1998	CHIC SAN & SHIP CANAL	AMMONIA METALS NUTRIENTS PH ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN FLOW ALTERATIONS OTHER HABITAT ALTERATIONS	6
ILGI02_GI 05-1998	CHIC SAN & SHIP CANAL	AMMONIA METALS NUTRIENTS PH ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN FLOW ALTERATIONS OTHER HABITAT ALTERATIONS	6
ILGI03_GI 03-1998	CHIC SAN & SHIP CANAL	AMMONIA METALS NUTRIENTS PH ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS	18
ILH01_H 01-1998	CALUMET-SAG CHANNEL	AMMONIA NUTRIENTS PRIORITY ORGANICS METALS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN FLOW ALTERATIONS OTHER HABITAT ALTERATIONS	92

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
ILH02_H 02-1998	CALUMET-SAG CHANNEL	AMMONIA NUTRIENTS PRIORITY ORGANICS METALS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS	114
ILHA04_HA 04-1998	LITTLE CALUMET R N	AMMONIA NUTRIENTS PRIORITY ORGANICS METALS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS	138
ILHA04_HA 06-1998	LITTLE CALUMET R N	AMMONIA NUTRIENTS METALS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS	138
ILHAA01_HAA 01-1998	CALUMET R	AMMONIA METALS NUTRIENTS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS	34
ILHAA01_HAA 40-1998	CALUMET R	AMMONIA NUTRIENTS METALS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN	34
ILHAB01_HAB 41-1998	GRAND CALUMET R	AMMONIA PRIORITY ORGANICS METALS NUTRIENTS	305

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
		ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS	
ILHB42_HB 01-1998	LITTLE CALUMET R S	NUTRIENTS METALS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN OTHER HABITAT ALTERATIONS PATHOGENS	27
ILHB42_HB 42-1998	LITTLE CALUMET R S	AMMONIA NUTRIENTS METALS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SALINITY/TDS/CHLORIDES PATHOGENS	27
ILHBD04_HBD 04-1998	THORN CR	NUTRIENTS METALS PH SALINITY/TDS/CHLORIDES OTHER HABITAT ALTERATIONS PATHOGENS	52
ILHC01_HC 01-1998	S BR CHICAGO R	AMMONIA METALS NUTRIENTS PH ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN FLOW ALTERATIONS OTHER HABITAT ALTERATIONS	14
ILHC01_HC-1998	S BR CHICAGO R	METALS NUTRIENTS PH ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN	14

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
		FLOW ALTERATIONS OTHER HABITAT ALTERATIONS	
ILHC01_HCA 01-1998	S FK S BR CHICAGO R	AMMONIA METALS FLOW ALTERATIONS OTHER HABITAT ALTERATIONS	14
ILHC01_HCB 01-1998	CHICAGO R	METALS NUTRIENTS OTHER HABITAT ALTERATIONS	14
ILHCC07_HCC 07-1998	N BR CHICAGO R	PRIORITY ORGANICS NUTRIENTS METALS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SALINITY/TDS/CHLORIDES PATHOGENS	39
ILHCC08_HCC 02-1998	N BR CHICAGO R	NUTRIENTS METALS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN PATHOGENS	45
ILHCC08_HCC 08-1998	N BR CHICAGO R	NUTRIENTS METALS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN PATHOGENS	45
ILHCCA01_HCC A01-1998	N SHORE CHANNEL	METALS NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN FLOW ALTERATIONS OTHER HABITAT	42

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
		ALTERATIONS	
ILHCCA01_HCCA03-1998	N SHORE CHANNEL	AMMONIA METALS NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN FLOW ALTERATIONS OTHER HABITAT ALTERATIONS PATHOGENS	42
ILHCCA01_HCCA04-1998	N SHORE CHANNEL	AMMONIA METALS NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN FLOW ALTERATIONS OTHER HABITAT ALTERATIONS PATHOGENS	42
ILHCCA01_HCCA05-1998	N SHORE CHANNEL	METALS NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN FLOW ALTERATIONS OTHER HABITAT ALTERATIONS	42
ILHCCC04_HCC02-1998	MID FK N BR CHIC R	NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SALINITY/TDS/CHLORIDES NOXIOUS AQUATIC PLANTS	96
ILQZF-1998	WASHINGTON PARK LGN	METALS NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SUSPENDED SOLIDS	18

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
		NOXIOUS AQUATIC PLANTS	
ILRHJ-1998	SKOKIE LAGOONS	NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN PATHOGENS SUSPENDED SOLIDS NOXIOUS AQUATIC PLANTS	322
ILRHR-1998	GEORGE	NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN PATHOGENS SUSPENDED SOLIDS NOXIOUS AQUATIC PLANTS	236
ILRHS-1998	TURTLEHEAD	NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SUSPENDED SOLIDS NOXIOUS AQUATIC PLANTS	243
ILRHU-1998	SHERMAN PARK LAGOONS	METALS NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SUSPENDED SOLIDS NOXIOUS AQUATIC PLANTS	18
ILRHW-1998	GARFIELD PK LAGOON	METALS NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SUSPENDED SOLIDS NOXIOUS AQUATIC PLANTS	18
ILRHX-1998	DOUGLAS PARK LAGOON	METALS NUTRIENTS SILTATION ORGANIC ENRICHMENT/LOW	18

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
		DISSOLVED OXYGEN SUSPENDED SOLIDS NOXIOUS AQUATIC PLANTS	
ILRHZA-1998	GOMPERS PARK LAGOON	NUTRIENTS SILTATION SUSPENDED SOLIDS	39
ILRHZE-1998	ARROWHEAD	NUTRIENTS ORGANIC ENRICHMENT/LOW DISSOLVED OXYGEN SUSPENDED SOLIDS NOXIOUS AQUATIC PLANTS	114
IN-0023BIOTA-1998	LITTLE CALUMET RIVER	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0023CYAND-1998	LITTLE CALUMET RIVER	CYANIDE	2000-2004
IN-0023DISOX-1998	LITTLE CALUMET RIVER	DISSOLVED OXYGEN	2000-2004
IN-0023FCMRC-1998	LITTLE CALUMET RIVER	FCA - MERCURY	2010-2012
IN-0023FCPCB-1998	LITTLE CALUMET RIVER	FCA - PCBS	2010-2012
IN-0023PESTI-1998	LITTLE CALUMET RIVER	PESTICIDES	2000-2004
IN-0024BIOTA-1998	LITTLE CALUMET RIVER	IMPAIRED BIOTIC COMMUNITIES	2005-2007
IN-0024CYAND-1998	LITTLE CALUMET RIVER	CYANIDE	2000-2004
IN-0024FCMRC-1998	LITTLE CALUMET RIVER	FCA - MERCURY	2010-2012
IN-0024FCPCB-1998	LITTLE CALUMET RIVER	FCA - PCBS	2010-2012

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ID	Waterbody	Parameter of Concern	Priority for TMDL development
IN-0024PESTI-1998	LITTLE CALUMET RIVER	PESTICIDES	2000-2004
IN-0055BIOTA-1998	DYER DITCH	IMPAIRED BIOTIC COMMUNITIES	2004-2006

FCA - Fish Consumption Advisory

PCB - Polychlorinated Biphenyls

Hg - Mercury

***Only waters for which fish tissue data support issuance of fish consumption advisories are individually cited above. The Indiana Department of Health has issued a general fish consumption advisory for all other waters of the state. This advisory was based on extrapolation of the fish tissue data that were available and generally recommends that if no site-specific advisory is in place for a waterbody, the public should eat no more than one meal (8 oz.) per week of fish caught in these waters. Women of child bearing age, women who are breast feeding, and children up to 15 years of age should eat no more than one meal per month. The basis for this general advisory is widespread occurrence of mercury or PCBs (or both) in most fish sampled throughout the state. Please refer to the most recent Fish Consumption Advisory booklet available through the Indiana Department of Health (317/233-7808). Sources of the mercury and PCBs are unknown for the most part, but it is suspected that they result from air deposition.

TABLE 2-1: LITTLE CALUMET-GALIEN COUNTY POPULATION PROJECTIONS 1990-2020

County	1990	2000	2010	2020	Percent Change (1990 to 2020)
La Porte	107066	110106	112124	113217	5
Lake	475594	484564	496886	503185	5
Porter	128932	146798	162781	169493	31
St. Joseph	247052	265559	272800	278093	12

(from IBRC 1999)

TABLE 2-2: LITTLE CALUMET-GALIEN CITY AND TOWN POPULATION ESTIMATES

City/Town	Census 1990	Estimate 1996	Percent Change (1990 to 1996)
Beverly Shores	620	634	2
Burns Harbor	825	894	8
Chesterton	9188	10313	12
Crown Point	18204	20104	10
Dune Acres	271	254	-6
Dyer	10823	13687	26
East Chicago	33860	30457	-10
Gary	116587	110271	-5
Griffith	16941	16812	0
Hammond	84248	77363	-8
Highland	23724	24073	1
Hobart	24659	25108	1
Lake Station	13881	13841	0
Long Beach	1923	1757	-8
Merrillville	27987	31290	11
Michiana Shores	384	420	9
Michigan City	33989	32752	-3
Munster	19934	20440	2
New Chicago	2037	1989	-2
Ogden Dunes	1490	1381	-7
Portage	29256	33477	14
Porter	3242	4744	46
Schererville	19098	23236	21

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City/Town	Census 1990	Estimate 1996	Percent Change (1990 to 1996)
Town of Pines	797	771	-3
Trail Creek	2456	2384	-2
Valparaiso	24564	27048	10
Whiting	5163	4568	-11
Winfield	635	796	25

(from IBRC 1997)

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TABLE 2-3: LIVESTOCK IN THE LITTLE CALUMET-GALIEN WATERSHED

	1997 Livestock Inventory							
	Hogs and pigs		Cattle and calves		Sheep and lamb		Layers 20 weeks and older	
County	Number	State Rank*	Number	State Rank*	Number	State Rank*	Number	State Rank*
La Porte	27110	47	24980	7	780	29	782	42
Lake	9435	74	3204	84	@	@	999	37
Porter	14134	66	4416	74	558	43	@	@
St. Joseph	27430	46	6440	61	@	@	(D)	13

* State Rank is out of a total of 92 counties in Indiana

@ - indicates species is not in the top 4 for this county

D - Numbers not disclosed by USDA-NASS

(from USDA 1997)

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TABLE 2-4: CROPS PRODUCED IN THE LITTLE CALUMET-GALIEN WATERSHED

	1997 Crops							
	Corn for grain		Soybeans for beans		Wheat		Hay crops	
County	Acres	State Rank*	Acres	State Rank*	Acres	State Rank*	Acres	State Rank*
La Porte	113242	5	76809	22	4186	49	10490	23
Lake	68344	38	55698	45	3101	68	3754	68
Porter	60976	49	47866	54	3964	56	3381	74
St. Joseph	69251	36	45696	56	4073	53	5832	44

* State Rank is out of a total of 92 counties in Indiana

@ - indicates species is not in the top 4 for this county

D - Numbers not disclosed by USDA-NASS

(from USDA 1997)

TABLE 2-5: OUTSTANDING RIVERS LIST FOR INDIANA

In 1993, the Natural Resources Commission adopted its "Outstanding Rivers List for Indiana." The listing was published in the Indiana Register on March 1 of that year as Information Bulletin #4 in Volume 16, Number 6, page 1677 through 1680 (sometimes cited as 16 IR 1677). The listing has also been specifically incorporated by reference into statutes and rules. Notably, the listing is referenced in the standards for utility line crossings within floodways, formerly governed by IC 14-28-2 and now controlled by 310 IAC 6-1-16 through 310 IAC 6-1-18. See, also, the general permit for logjam removals, implemented as an emergency rule and pending for adoption as a permanent rule at 310 IAC 6-1-20. Except where incorporated into a statute or rule, the listing is intended to provide guidance rather than to have regulatory application.

I. INTRODUCTION

To help identify the rivers and streams which have particular environmental or aesthetic interest, a special listing has been prepared by the division of outdoor recreation of the department of natural resources. The listing is a corrected and condensed version of a listing compiled by American Rivers and dated October 1990. There are about 2,000 river miles included on the listing, a figure which represents less than 9% of the estimated 24,000 total river miles in Indiana. The natural resources commission has adopted the listing as an official recognition of the resource values of these waters.

A river included in the listing qualifies under one or more of the following 22 categories. An asterisk indicates that all or part of the river segment was also included in the "Roster of Indiana Waterways Declared Navigable," 15 IR 2385 (July 1992). [Note: this listing is now included in the 1997 "Roster of Indiana Waterways Declared Navigable or Nonnavigable."] A river designated "EUW" is an exceptional use water. A river designated "HQW" is a high quality water, and a river designated "SS" is a salmonoid stream.

1. Designated National Wild and Scenic Rivers. Rivers that Congress has included in the National Wild and Scenic System pursuant to the National Wild and Scenic River Act, Public Law 90-452.
2. National Wild and Scenic Study Rivers. Rivers that Congress has determined should be studied for possible inclusion in the National Wild and Scenic Rivers System.
3. Federally Protected Rivers other than Wild and Scenic. Rivers subject to federal legal protection other than pursuant to the National Wild and Scenic Rivers Act, such as National Rivers and Waterways and National Recreation Areas.
4. State designated Scenic Rivers. Rivers included in state river conservation systems or otherwise protected pursuant to an act of the state legislature.
5. Nationwide Rivers Inventory Rivers. The 1,524 river segments identified by the National Park Service in its 1982 "Nationwide Rivers Inventory" as qualified for consideration for inclusion in the National Wild and Scenic Rivers System.
6. Hydro Ban Rivers. Rivers on which Congress has prohibited future hydropower development.
7. Rivers Identified in State Inventories or Assessments. Outstanding rivers from state inventories or assessments, i.e., rivers identified as having statewide or greater significance.
8. Atlantic Salmon Restoration Rivers. Rivers undergoing active Atlantic salmon restoration efforts and identified by the U.S. Fish and Wildlife Service for planned restoration.
9. Federal Public Lands Rivers. Rivers identified in U.S. Forest Service and Bureau of Land Management resource planning as potential additions to the National Wild and Scenic Rivers System.
10. State Fishing Rivers. Rivers identified by states as having outstanding fishing values, such as Blue Ribbon Trout Streams.
11. State Heritage Program Sites. Rivers identified by state natural heritage programs or similar state programs as having outstanding ecological importance.

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12. Priority Aquatic Sites. Rivers identified in "Priority Aquatic Sites for Biological Diversity Conservation," published by the Nature Conservancy in 1985.
13. Canoe Trails. State-designated canoe/boating routes.
14. Outstanding Whitewater Streams. Rivers listed in the American Whitewater Affiliation's 1990 Inventory of American Whitewater.
15. Locally Protected Rivers. Rivers protected through local and private protection strategies.
16. State Park Rivers. Rivers protected by inclusion in a state park or state preserve.
17. Other Rivers. Miscellaneous rivers identified as having outstanding ecological, recreational, or scenic importance.
18. High Water Quality Rivers. "Outstanding Resources Waters" designated by states and other rivers identified by states as having outstanding water quality.
19. National Natural Landmark Rivers. Rivers designated as, or included within, National Natural Landmarks.
20. State Study Rivers. Rivers that have been formally proposed for state protection or designation.
21. BOR Western Rivers. Rivers listed in the Bureau of Outdoor Recreation's 1982 "Western U.S. Water Plan" proposal as exhibiting identified free-flowing values.
22. State legislated Wabash River Heritage Corridor.

II. LISTING OF OUTSTANDING RIVERS AND STREAMS IN THE LITTLE CALUMET-GALIEN WATERSHED

River	Significance	County	Segment
Deep River	13, 17	Lake, Porter	1 mile south of U.S. 30 to Little Calumet River
Little Calumet East Fork	10, 13, SS	Porter	C.R. 600E to S.R. 249

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TABLE 2-6: SPECIAL AREAS IN THE LITTLE CALUMET-GALIEN WATERSHED

County	Special Area	Manager	Access
LA PORTE	BARKER WOODS NATURE PRESERVE	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LA PORTE	FISH CREEK FEN NATURE PRESERVE	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LA PORTE	FOX MEMORIAL PARK	LOCAL- LAPORTE CO. PARKS & RECREATION	OPEN-
LA PORTE	GALENA (SPRINGFIELD FEN) WETLAND CONSERVATION AREA	DNR FISH & WILDLIFE	OPEN-
LA PORTE	HILDEBRANDT LAKE	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LA PORTE	HOG LAKE PUBLIC ACCESS SITE	DNR FISH & WILDLIFE	OPEN-
LA PORTE	IDNL - PINHOOK BOG UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
LA PORTE	IZAAK WALTON LEAGUE PROPERTY	PRIV- IZAAK WALTON LEAGUE	RESTRICTED-
LA PORTE	KANKAKEE FISH AND WILDLIFE AREA	DNR FISH & WILDLIFE	OPEN-
LA PORTE	KANKAKEE RIVER SWAMPLAND	DNR FISH & WILDLIFE	OPEN-
LA PORTE	KESLING OUTDOOR REC. CENTER	LOCAL- LAPORTE CO. PARKS & RECREATION	OPEN-
LA PORTE	KINGSBURY FISH AND WILDLIFE AREA	DNR FISH & WILDLIFE	OPEN-
LA PORTE	LUHR PARK	LOCAL- LAPORTE CO. PARKS & RECREATION	OPEN-
LA PORTE	MICHIGAN CITY FISH & WILDLIFE HEADQUARTERS	DNR FISH & WILDLIFE	OPEN-
LA PORTE	MILL CREEK FEN NATURE PRESERVE	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LA PORTE	PRAIRIE MEADOW PARK	LOCAL- WESTVILLE PARK BOARD	OPEN-

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County	Special Area	Manager	Access
LA PORTE	RUMELY PARK	LOCAL- LAPORTE CO. PARKS & RECREATION	OPEN-
LA PORTE	SPRINGFIELD FEN NATURE PRESERVE	DNR NATURE PRESERVES	OPEN-
LA PORTE	STOCKWELL WOODS	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LA PORTE	TRAIL CREEK - NIPSCO	DNR FISH & WILDLIFE	RESTRICTED-
LA PORTE	TRAIL CREEK FEN	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LA PORTE	TRAIL CREEK P.F.A.	DNR FISH & WILDLIFE	OPEN-
LA PORTE	WASHINGTON PARK	LOCAL- MICHIGAN CITY PARK BOARD	OPEN-
LA PORTE	YELLOW BIRCH WETLAND	PRIV- THE NATURE CONSERVANCY	RESTRICTED-
LAKE	25TH AVENUE PARK	LOCAL- GARY PARK BOARD	OPEN-
LAKE	BADAL WILDLIFE HABITAT TRUST AREA	DNR FISH & WILDLIFE	OPEN-
LAKE	BEAVER DAM WETLAND CONSERVATION AREA	DNR FISH & WILDLIFE	OPEN-
LAKE	BIESECKER (COOK) PRAIRIE NATURE PRESERVE	DNR NATURE PRESERVES	RESTRICTED-
LAKE	BLUEBIRD PARK	LOCAL- MUNSTER PARK BOARD	OPEN-
LAKE	CALUMET PRAIRIE NATURE PRESERVE	DNR NATURE PRESERVES	RESTRICTED-
LAKE	CEDAR LAKE PUBLIC ACCESS SITE	DNR FISH & WILDLIFE	OPEN-
LAKE	CENTENNIAL PLAZA AND TRAIL	LOCAL- HAMMOND PARK BOARD	OPEN-
LAKE	CLARK AND PINE EAST	DNR NATURE PRESERVES	RESTRICTED-
LAKE	CLARK AND PINE NATURE PRESERVE	DNR NATURE PRESERVES	RESTRICTED- BY PERMISSION ONLY
LAKE	DEEP RIVER COUNTY PARK	LOCAL- LAKE CO. PARKS &	OPEN-

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County	Special Area	Manager	Access
		RECREATION	
LAKE	DEEP RIVER PRESERVE	PRIV- THE NATURE CONSERVANCY	RESTRICTED-
LAKE	EDWARD C. DOWLING PARK	LOCAL- HAMMOND PARK BOARD	OPEN-
LAKE	ELLENDALE PARK	LOCAL- HIGHLAND PARK BOARD	OPEN-
LAKE	GAYLORD BUTTERFLY AREA	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LAKE	GERMAN METHODIST CEMETERY PRAIRIE	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LAKE	GIBSON WOODS NATURE PRESERVE	LOCAL- LAKE CO. PARKS & RECREATION	OPEN- 9 TO 5 DAILY
LAKE	GRAND KANKAKEE MARSH	LOCAL- LAKE CO. PARKS & RECREATION	OPEN-
LAKE	GRAND LAKE RECREATION AREA	LOCAL- EAST GARY PARK BOARD	OPEN-
LAKE	HARRISON PARK	LOCAL- HAMMOND PARK BOARD	OPEN-
LAKE	HATCHER PARK	LOCAL- GARY PARK BOARD	OPEN-
LAKE	HOBART LAKEFRONT PARK	LOCAL- HOBART PARK BOARD	OPEN-
LAKE	HOMESTEAD PARK	LOCAL- HIGHLAND PARK BOARD	OPEN-
LAKE	HOOSIER PRAIRIE NATURE PRESERVE	DNR NATURE PRESERVES	OPEN-
LAKE	HOOSIER PRAIRIE-GAYLORD	DNR NATURE PRESERVES	RESTRICTED- BY PERMISSION ONLY
LAKE	HOWE PARK	LOCAL- GARY PARK BOARD	OPEN-
LAKE	IDNL - MILLER UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
LAKE	IDNL - TOLLESTON UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
LAKE	IVANHOE NATURAL AREA	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
LAKE	JACKSON PARK	LOCAL- GARY PARK BOARD	OPEN-
LAKE	JEORSE PARK	LOCAL-	OPEN-

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County	Special Area	Manager	Access
LAKE	LAKE ETTA PARK	LOCAL- LAKE CO. PARKS & RECREATION	OPEN-
LAKE	LASALLE FISH AND WILDLIFE AREA	DNR FISH & WILDLIFE	OPEN-
LAKE	LEMON LAKE COUNTY PARK	LOCAL- LAKE CO. PARKS & RECREATION	OPEN-
LAKE	LEROY SITE	LOCAL- LAKE CO. PARKS & RECREATION	OPEN-
LAKE	LIBERTY PARK	LOCAL- LOWELL PARK BOARD	OPEN-
LAKE	LIVERPOOL NATURE PRESERVE	DNR NATURE PRESERVES	OPEN-
LAKE	MAC JAY LAKE	PRIV- IZAAK WALTON LEAGUE	RESTRICTED-
LAKE	MAIN SQUARE PARK	LOCAL- HIGHLAND PARK BOARD	OPEN-
LAKE	MARQUETTE PARK BEACH	LOCAL- GARY PARK BOARD	OPEN-
LAKE	MAYWOOD PARK	LOCAL- HAMMOND PARK BOARD	OPEN-
LAKE	MC CLOSKEY SAVANNA(MCCLOSKEY'S WOODS)	DNR NATURE PRESERVES	RESTRICTED-
LAKE	MEADOWS PARK	LOCAL- HIGHLAND PARK BOARD	OPEN-
LAKE	MUNSTER COMMUNITY PARK	LOCAL- MUNSTER PARK BOARD	OPEN-
LAKE	NEW CHICAGO CENTENNIAL PARK	LOCAL- NEW CHICAGO PARK BOARD	OPEN-
LAKE	NORTHGATE PARK	LOCAL- DYER PARK BOARD	OPEN-
LAKE	OAK RIDGE PRAIRIE COUNTY PARK	LOCAL- LAKE CO. PARKS & RECREATION	OPEN-
LAKE	PHEASANT HILLS PARK	LOCAL- DYER PARK BOARD	OPEN-
LAKE	RIDGEWAY PARK	LOCAL- MUNSTER PARK BOARD	OPEN-
LAKE	RIVERVIEW COMMUNITY PARK	LOCAL- EAST GARY PARK BOARD	OPEN-
LAKE	SHIRLEY HEINZE F. HOBART TRACT	PRIV- SHIRLEY HEINZE FOUNDATION	RESTRICTED-
LAKE	SOUTHRIDGE PARK (SHEPPARD PARK)	LOCAL- HIGHLAND PARK BOARD	OPEN-

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County	Special Area	Manager	Access
LAKE	ST. JOHN PRAIRIE	DNR NATURE PRESERVES	RESTRICTED-
LAKE	SUNNYSIDE PARK	LOCAL- EAST CHICAGO PARK BOARD	OPEN-
LAKE	TOLLESTON PARK	LOCAL- GARY PARK BOARD	OPEN-
LAKE	TOLLESTON RIDGES NATURE PRESERVE	LOCAL- LAKE CO. PARKS & RECREATION	CLOSED-
LAKE	WADSWORTH PARK	LOCAL- GRIFFITH PARK BOARD	OPEN-
LAKE	WASHINGTON PARK	LOCAL- GARY PARK BOARD	OPEN-
LAKE	WHIHALA BEACH COUNTY PARK	LOCAL- LAKE CO. PARKS & RECREATION	OPEN-
LAKE	WOLF LAKE	LOCAL- HAMMOND PARK BOARD	OPEN-
PORTER	COFFEE CREEK (MORaine) MANAGED AREA	PRIV- THE NATURE CONSERVANCY	RESTRICTED-
PORTER	DOGWOOD PARK	LOCAL- CHESTERTON PARK BOARD	OPEN-
PORTER	DRAZER PARK	LOCAL- KOUTS PARK BOARD	OPEN-
PORTER	DUNES NATURE PRESERVE	DNR STATE PARKS	OPEN-
PORTER	FOREST PARK GOLF COURSE	LOCAL- HIGHLAND PARK BOARD	OPEN-
PORTER	HAVEN HOLLOW PARK	LOCAL- PORTAGE PARK BOARD	OPEN-
PORTER	IDNL - BAILLY UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
PORTER	IDNL - COWLES BOG	U.S. NATIONAL PARK SERVICE	OPEN-
PORTER	IDNL - DUNE ACRES UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
PORTER	IDNL - HERON ROOKERY UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
PORTER	IDNL - KEISER UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
PORTER	IDNL - TAMARACK UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
PORTER	IDNL - VISITOR CENTER UNIT	U.S. NATIONAL PARK SERVICE	OPEN-
PORTER	IDNL - WEST BEACH UNIT	U.S. NATIONAL PARK SERVICE	OPEN-

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County	Special Area	Manager	Access
PORTER	INDIANA DUNES STATE PARK	DNR STATE PARKS	OPEN-
PORTER	IZAACK WALTON LEAGUE PROPERTY	PRIV- IZAACK WALTON LEAGUE	RESTRICTED-
PORTER	LAKEWOOD (ROGERS) PARK	LOCAL- VALPARAISO PARK BOARD	OPEN-
PORTER	LAKEWOOD DUNE FOREST	PRIV- THE NATURE CONSERVANCY	RESTRICTED- BY PERMISSION ONLY
PORTER	LANGELUTTIG MARSH WETLAND CONSERVATION AREA	DNR FISH & WILDLIFE	OPEN-
PORTER	MORaine NATURAL AREA (WOMER TRACT 3)	DNR NATURE PRESERVES	RESTRICTED- BY PERMISSION ONLY
PORTER	MORaine NATURE PRESERVE	DNR NATURE PRESERVES	RESTRICTED- BY PERMISSION ONLY
PORTER	NELSON PARK	LOCAL- TRAIL CREEK PARK BOARD	OPEN-
PORTER	NORTHSIDE PARK	LOCAL- VALPARAISO PARK BOARD	OPEN-
PORTER	PORTAGE (WOODLAND) PARK	LOCAL- PORTAGE PARK BOARD	OPEN-
PORTER	PORTAGE BICENTENNIAL PARK	LOCAL- PORTAGE PARK BOARD	OPEN-
PORTER	PRAIRIE-DUNELAND TRAIL CO. PARK	LOCAL- PORTAGE PARK BOARD	OPEN-
PORTER	SUMAN FEN	DNR NATURE PRESERVES	RESTRICTED- BY PERMISSION ONLY
PORTER	SUNSET HILL FARM PARK	LOCAL- PORTER CO. PARKS & RECREATION DEPT.	OPEN-
PORTER	UNIVERSITY OF CHICAGO WOODS	UNIV- UNIVERSITY OF CHICAGO	RESTRICTED-
ST. JOSEPH	(YE OLDE) EAST RACEWAY PARK	LOCAL- SOUTH BEND PARKS AND RECREATION	OPEN-
ST. JOSEPH	ABANDONED RAILROAD ACQ.	LOCAL- ROSELAND PARK BOARD	OPEN-
ST. JOSEPH	BAUGO CREEK PARK - PHASE I	LOCAL- ST. JOSEPH CO. PARKS & RECREATION	OPEN-
ST.	BELLVILLE GARDENS	LOCAL- SOUTH BEND PARKS AND	OPEN-

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County	Special Area	Manager	Access
JOSEPH		RECREATION	
ST. JOSEPH	BENDIX WOODS NATURE PRESERVE	LOCAL- ST. JOSEPH CO. PARKS & RECREATION	OPEN-
ST. JOSEPH	BLUE HERON (LILLOVITCH) ROOKERY NONGAME AREA	DNR FISH & WILDLIFE	RESTRICTED- BY PERMISSION ONLY
ST. JOSEPH	BOOTH TARKINGTON PARK (PAUL BOEHM PARK)	LOCAL- SOUTH BEND PARKS AND RECREATION	OPEN-
ST. JOSEPH	CENTRAL PARK	LOCAL- MISHAWAKA PARK BOARD	OPEN-
ST. JOSEPH	EAST BANK PARK	LOCAL- SOUTH BEND PARKS AND RECREATION	OPEN-
ST. JOSEPH	KANKAKEE FEN NATURE PRESERVE	PRIV- THE NATURE CONSERVANCY	CLOSED-
ST. JOSEPH	LEEPER PARK	LOCAL- SOUTH BEND PARKS AND RECREATION	OPEN-
ST. JOSEPH	MARTIN LUTHER KING PARK	LOCAL- SOUTH BEND PARKS AND RECREATION	OPEN-
ST. JOSEPH	MARY GIBBARD PARK	LOCAL- MISHAWAKA PARK BOARD	OPEN-
ST. JOSEPH	MISHAWAKA FISH LADDER	DNR FISH & WILDLIFE	OPEN-
ST. JOSEPH	NORTHSIDE PARK	LOCAL- MISHAWAKA PARK BOARD	OPEN-
ST. JOSEPH	OLD RAILROAD BIKE TRAIL	LOCAL-	OPEN-
ST. JOSEPH	PIER PARK	LOCAL- SOUTH BEND PARKS AND RECREATION	OPEN-
ST. JOSEPH	PLEASANT LAKE PUBLIC ACCESS SITE	DNR FISH & WILDLIFE	OPEN-
ST. JOSEPH	POTATO CREEK STATE PARK	DNR STATE PARKS	OPEN-
ST. JOSEPH	SOUTH BEND (ST. JOSEPH R.) PUBLIC ACCESS SITE	DNR FISH & WILDLIFE	OPEN-

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County	Special Area	Manager	Access
ST. JOSEPH	SPICER LAKE NATURE PRESERVE	LOCAL- ST. JOSEPH CO. PARKS & RECREATION	OPEN-
ST. JOSEPH	SPICER LAKE, EBERSOLE II ADDITION	PRIV- THE NATURE CONSERVANCY	OPEN-
ST. JOSEPH	ST. JOSEPH RIVER (HOWARD) PARK	LOCAL- SOUTH BEND PARKS AND RECREATION	OPEN-
ST. JOSEPH	ST. PATRICKS PARK	LOCAL- ST. JOSEPH CO. PARKS & RECREATION	OPEN-
ST. JOSEPH	SWAMP ROSE NATURE PRESERVE	DNR STATE PARKS	OPEN-
ST. JOSEPH	TOLL ROAD FIELD	LOCAL- ROSELAND PARK BOARD	OPEN-
ST. JOSEPH	TRAIL CREEK P.F.A.	DNR FISH & WILDLIFE	OPEN-
ST. JOSEPH	TWIN BRANCH FISH HATCHERY	DNR FISH & WILDLIFE	RESTRICTED- BY PERMISSION ONLY
ST. JOSEPH	ZAPPPIA (TWIN BRANCH) PUBLIC ACCESS SITE	DNR FISH & WILDLIFE	OPEN-

TABLE 2-7: 1995 WATER USE INFORMATION FOR THE LITTLE CALUMET-GALIEN WATERSHED

Population and Water Use totals	1995
Total population in the watershed (thousands)	614.67
Public Water Supply	1995
Population served by public groundwater supply (thousands)	61.68
Population served by surface water supply (thousands)	456.68
Total population served by public water supply (thousands)	518.36
Total groundwater withdrawals (mgd)	4.97
Total surface water withdrawals (mgd)	0.0
Total water withdrawals (mgd)	4.97
Total per capita withdrawal (gal/day)	13.95
Population self-supplied with water (thousands)	96.31
Commercial Water Use	1995
Groundwater withdrawal for commercial use (mgd)	1.24
Surface water withdrawal for commercial use (mgd)	0.94
Deliveries from public water supplies for commercial use (mgd)	25.99
Total commercial water use (mgd)	4.21
Industrial Water Use	1995
Groundwater withdrawal for industrial use (mgd)	8.08
Surface water withdrawals for industrial use (mgd)	250.02
Deliveries from public water suppliers for industrial use (mgd)	15.74

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Total industrial water use (mgd)	101.69
Agricultural Water Use	1995
Groundwater withdrawals for livestock use (mgd)	0.1
Surface water withdrawals for livestock use (mgd)	0.15
Total livestock water use (mgd)	0.19
Groundwater withdrawals for irrigation (mgd)	0.03
Surface water withdrawals for irrigation (mgd)	0.07
Total irrigation water use (mgd)	0.1

Notes:

mgd: million gallons per day

gal/day: gallons per day

(from USGS 2001)

- The water-use information presented in this table was compiled from information provided in the U.S. Geological Survey's National Water-Use Information Program data system for 1990 and 1995. The National Water-Use Information Program is responsible for compiling and disseminating the nation's water-use data. The U.S. Geological Survey works in cooperation with local, State, and Federal environmental agencies to collect water-use information at a site-specific level. Every five years, the U.S. Geological Survey compiles data at the state and hydrologic region level into a national water-use data system and publishes a national circular.

TABLE 3-1: CAUSES OF WATER POLLUTION AND CONTRIBUTING ACTIVITIES

Cause	Activity associated with cause
<i>E. coli</i>	Failing septic systems, direct septic discharge, animal waste (including runoff from livestock operations and impacts from wildlife), improperly disinfected wastewater treatment plant effluent
Toxic Chemicals	Pesticide/herbicide applications, household hazardous waste, disinfectants, automobile fluids, accidental spills, illegal dumping, urban stormwater runoff, direct septic discharge, industrial effluent
Oxygen-Consuming Substances	Wastewater effluent, leaking sewers and septic tanks, direct septic discharge, animal waste
Nutrients	Fertilizer on agricultural crops and residential/commercial lawns, animal wastes, leaky sewers and septic tanks, direct septic discharge, atmospheric deposition, wastewater treatment plants

TABLE 3-2: COMBINED SEWER OVERFLOWS IN THE LITTLE CALUMET-GALIEN WATERSHED

<u>Community</u>	<u>CSO Outfalls</u>
Chesterton	1
Crown Point	5
East Chicago	3
Gary	12
Hammond	20
Michigan City	2

(from ICAA 2000)

TABLE 3-3: NPDES PERMITTED FACILITIES IN THE LITTLE CALUMET-GALIEN WATERSHED

NPDES	Facility Name	Major/ Minor	City	County	Status
IN0000027	CERESTAR USA, INC.	MAJOR	HAMMOND	LAKE	ACTIVE
IN0000035	PRAXAIR, INC., LAKESIDE PLANT	MAJOR	GARY,	LAKE	ACTIVE
IN0000043	PRAXAIR, INC. LINDE DIVISION	MINOR	EAST CHICAGO	LAKE	INACTIVE
IN0000051	ENERGY COOPERATIVE	MINOR	EAST CHICAGO	LAKE	INACTIVE
IN0000086	MOBIL OIL CORPORATION	MAJOR		LAKE	INACTIVE
IN0000094	ISPAT INLAND, INC.	MAJOR	EAST CHICAGO,	LAKE	ACTIVE
IN0000108	BP PRODUCTS NORTH AMERICA INC.	MAJOR	WHITING	LAKE	ACTIVE
IN0000116	NIPSCO, MICHIGAN CITY GEN. STA	MAJOR	MICHIGAN CITY	LA PORTE	ACTIVE
IN0000124	NIPSCO, DEAN H. MITCHELL STA	MAJOR	GARY	LAKE	ACTIVE
IN0000132	NIPSCO, BAILEY GENERATING STA	MAJOR	CHESTERTON	PORTER	ACTIVE
IN0000141	KAISER ALUM & CHEM-GARY COKE	MINOR		LAKE	INACTIVE
IN0000159	CITGO PETROLEUM CORP.	MINOR	EAST CHICAGO	LAKE	INACTIVE
IN0000167	AMERICAN STEEL FOUNDRIES	MINOR	EAST CHICAGO	LAKE	ACTIVE
IN0000175	BETHLEHEM STEEL CORPORATION	MAJOR	CHESTERTON	PORTER	ACTIVE
IN0000183	JOY MANUFACTURING COMPANY	MINOR	MICHIGAN CITY,	LA PORTE	INACTIVE
IN0000191	VULCAN MATERIALS CO-METALLICS	MAJOR	GARY	LAKE	INACTIVE
IN0000205	LTV STEEL COMPANY	MAJOR	EAST CHICAGO,	LAKE	ACTIVE
IN0000221	STATE LINE ENERGY, LLC	MAJOR	HAMMOND	LAKE	ACTIVE
IN0000248	HARBISON-WALKER REFRACTORIES	MINOR	HAMMOND	LAKE	ACTIVE
IN0000264	UNILEVER HPC USA	MINOR	HAMMOND,	LAKE	ACTIVE
IN0000272	MYSTIK CORPORATION	MINOR		LA PORTE	INACTIVE
IN0000281	U.S. STEEL LLC - GARY WORKS	MAJOR	GARY,	LAKE	ACTIVE
IN0000299	ITT PHILLIPS DRILL DIVISION	MAJOR		LA PORTE	INACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
IN0000302	CCA OF INDIANA, INC.	MINOR	VALPARAISO	PORTER	INACTIVE
IN0000329	W.R. GRACE & CO. -CONN.	MINOR	EAST CHICAGO	LAKE	ACTIVE
IN0000337	NATIONAL STEEL, MIDWEST DIV.	MAJOR	PORTAGE	PORTER	ACTIVE
IN0004553	SANDBORN WATER DEPARTMENT	MINOR		KNOX	INACTIVE
IN0020931	ROLLING PRAIRIE SERVICE AREA	MINOR	ROLLING PRAIRIE	LA PORTE	ACTIVE
IN0021521	US COAST GUARD-INDIANA HARBOR	MINOR		LAKE	INACTIVE
IN0021725	MIDWEST STEEL DIVISION NAT. ST	MINOR		PORTER	INACTIVE
IN0021784	AMERICAN CYANAMID CO	MINOR		LA PORTE	INACTIVE
IN0021946	TEXACO BULK PLT	MINOR		LAKE	INACTIVE
IN0022055	CHESTERTON TOWN OF	MINOR		PORTER	INACTIVE
IN0022578	CHESTERTON MUNICIPAL STP	MAJOR	PORTER	PORTER	ACTIVE
IN0022829	EAST CHICAGO_MUNICIPAL STP	MAJOR	EAST CHICAGO	LAKE	ACTIVE
IN0022977	GARY WASTEWATER TREATMENT PLT	MAJOR	GARY	LAKE	ACTIVE
IN0023060	HAMMOND MUNICIPAL STP	MAJOR	HAMMOND	LAKE	ACTIVE
IN0023086	HOBART MUNICIPAL STP	MINOR		LAKE	INACTIVE
IN0023752	MICHIGAN CITY SANITARY DIST.	MAJOR	MICHIGAN CITY	LA PORTE	ACTIVE
IN0024368	PORTAGE MUNICIPAL STP	MAJOR	PORTAGE	PORTER	ACTIVE
IN0024457	SCHERERVILLE MUNICIPAL STP	MAJOR	SCHERERVILLE	LAKE	ACTIVE
IN0024660	VALPARAISO MUNICIPAL STP	MAJOR	VALPARAISO	PORTER	ACTIVE
IN0025178	US AIR FORCE 1ST MISSILE NPR	MINOR		PORTER	INACTIVE
IN0025283	SOUTH COUNTY UTILITIES	MINOR	CROWN POINT	LAKE	ACTIVE
IN0025551	NORTHERN INDIANA PUBLIC SERVIC	MINOR		LA PORTE	INACTIVE
IN0025763	CROWN POINT MUNICIPAL STP	MAJOR	CROWN POINT	LAKE	ACTIVE
IN0025887	VALPARAISO DEPT WTR WKS-AIRPOR	MINOR	VALPARAISO	PORTER	ACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
IN0025925	CHRIS CRAFT PRIUSTRIES	MINOR		PORTER	INACTIVE
IN0025941	CITIES SERVICES OIL CO	MINOR		LAKE	INACTIVE
IN0029793	LEHIGH PORTLAND CEMENT/GARY	MINOR	GARY	LAKE	INACTIVE
IN0029866	WILLIAMSBURG MANOR M.H.P.	MINOR		PORTER	INACTIVE
IN0029891	PURDUE UNIV.-N. CENTRAL CAMPUS	MINOR	WESTVILLE	LA PORTE	ACTIVE
IN0029971	LINCOLN UTILITIES INC.	MINOR		LAKE	INACTIVE
IN0029980	OAK TREE MOBILE HOME PARK	MINOR	PORTAGE	PORTER	INACTIVE
IN0029998	NEIGHBORHOOD UTILITIES	MINOR		PORTER	INACTIVE
IN0030252	IDNR INDIANA DUNES STATE PARK	MINOR		PORTER	INACTIVE
IN0030554	RIVER FOREST HIGH SCHOOL	MINOR	HOBART	LAKE	INACTIVE
IN0030651	SOUTH HAVEN SEWER WORKS, INC.	MAJOR	VALPARAISO	PORTER	ACTIVE
IN0030767	LIBERTY ELEM & MIDDLE SCHOOL	MINOR	CHESTERTON	PORTER	ACTIVE
IN0030821	HYLES-ANDERSON COLLEGE	MINOR		LAKE	INACTIVE
IN0030937	BRUMMIT ELEM. SCHOOL	MINOR	CHESTERTON	PORTER	INACTIVE
IN0031089	LINCOLN GARDEN SUBD.	MINOR	MERRILLVILLE	LAKE	INACTIVE
IN0031119	SHOREWOOD FOREST UTILITIES	MINOR	VALPARAISO	PORTER	ACTIVE
IN0031771	JOHN WOOD ELEMENTARY SCHOOL	MINOR	MERRILLVILLE	LAKE	ACTIVE
IN0031852	WILLIAMSBURG MANNOR MOBILE HOM	MINOR		PORTER	INACTIVE
IN0032069	AMERICAN TRAILER COURT	MINOR		PORTER	INACTIVE
IN0032221	BURNS HARBOR ESTATES	MINOR		PORTER	INACTIVE
IN0032239	SCHERERVILLE HGHTS UTL INC	MINOR		LAKE	INACTIVE
IN0032417	EAST GARY CITY OF	MINOR		LAKE	INACTIVE
IN0032425	U.S.S. LEAD REFINERY, INC.	MINOR	EAST CHICAGO	LAKE	INACTIVE
IN0032450	MICHIGAN CITY FILTRATION PLANT	MINOR	MICHIGAN CITY	LA PORTE	ACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
IN0032549	BLAW-KNOX FOUNDRY & MILL	MINOR		LAKE	INACTIVE
IN0032557	CROWN POINT WTR TRMT PLT	MINOR	CROWN POINT	LAKE	INACTIVE
IN0032565	ANDERSON COMPANY, THE	MAJOR	MICHIGAN CITY	LA PORTE	INACTIVE
IN0032689	BERKO ELECTRIC MFG CORP-DIV OF	MINOR		LA PORTE	INACTIVE
IN0032701	CULLIGAN SOFT WATER SERVICE	MINOR		LAKE	INACTIVE
IN0032883	PLEASANT VALLEY MOBILE HOME PK	MINOR		PORTER	INACTIVE
IN0032999	PHILLIPS PIPE LINE COMPANY	MINOR	EAST CHICAGO	LAKE	INACTIVE
IN0035483	K A STEEL CHEMICALS INC-GARY P	MAJOR		LAKE	INACTIVE
IN0035491	MUNSTER TOWN OF	MINOR		LAKE	INACTIVE
IN0035548	MERRILLVILLE CONSERVANCY DIST.	MINOR	MERRILLVILLE	LAKE	INACTIVE
IN0035581	SANDS MOBILE HOME PARK	MINOR	VALPARAISO	PORTER	ACTIVE
IN0035661	UNION CARBIDE CORP-LINDE DIV-B	MINOR		PORTER	INACTIVE
IN0035793	SHADY OAKS MOBILE HOME PARK	MINOR	MICHIGAN CITY	LA PORTE	ACTIVE
IN0035939	ELMWOOD MOBILE HOME PARK - AME	MINOR		PORTER	INACTIVE
IN0036323	CAMELOT MOBILE HOME PARK INC	MINOR		PORTER	INACTIVE
IN0036510	WHITTINGTON UTILITIES INC	MINOR		LAKE	INACTIVE
IN0036765	NORTHWEST IND. WATER CORP:	MINOR	PORTER	PORTER	INACTIVE
IN0036803	LALUMIERE SCHOOL	MINOR	LAPORTE	LA PORTE	ACTIVE
IN0037010	BURNS HARBOR TOWN OF	MINOR		PORTER	INACTIVE
IN0037591	HIGHLAND SANITARY DIST	MINOR		LAKE	INACTIVE
IN0037630	CHESTERTON TOWN OF	MINOR		PORTER	INACTIVE
IN0037800	UNION CARBIDE CORP LINDE DIV	MINOR		LAKE	INACTIVE
IN0038687	MELODY LANE M.H.P.	MINOR	GARY	LAKE	INACTIVE
IN0038709	LIBERTY FARM MOBILE HOME PARK	MINOR	VALPARAISO	PORTER	ACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
IN0039331	DYER MUNICIPAL STP	MAJOR	DYER	LAKE	ACTIVE
IN0039373	GRIFFITH MUNICIPAL STP	MINOR		LAKE	INACTIVE
IN0039535	PIONEER VILLAGE MHP	MINOR	LAPORTE	LA PORTE	ACTIVE
IN0039659	BURNS HARBOR ESTATES	MINOR	CHESTERTON	PORTER	ACTIVE
IN0039683	CHRISTIAN ASSEMBLY CHURCH	MINOR	HOBART	LAKE	INACTIVE
IN0040975	INDIAN SPRINGS SUBDIVISION	MINOR	LAPORTE	LA PORTE	ACTIVE
IN0041581	GREEN ACRES MOBILE HOME PARK	MINOR		LA PORTE	INACTIVE
IN0041891	NOB HILL SUBDIVISION	MINOR	HOBART	LAKE	ACTIVE
IN0042021	ELMWOOD MOBILE HOME PARK	MINOR	VALPARAISO	PORTER	ACTIVE
IN0042498	VALPARAISO WTR WRKS-FLINT LAKE	MINOR	VALPARAISO	PORTER	ACTIVE
IN0042943	LAKE REGION CHRISTIAN ASSEMBLY	MINOR	CROWN POINT	LAKE	ACTIVE
IN0043435	PRAXAIR, BURNS HARBOR FACILITY	MINOR	BURNS HARBOR,	PORTER	ACTIVE
IN0043613	CHRIS CRAFT INDUSTRIAL PRODUCT	MINOR	PORTAGE	PORTER	INACTIVE
IN0043907	COMMUNITY UTILITIES OF GARY	MINOR	MERRILLVILLE	LAKE	ACTIVE
IN0044148	LAKE GEORGE PLATEAU SUBD.	MINOR		LAKE	INACTIVE
IN0044580	BROOKVIEW TERRACE SUBDIVISION	MINOR	HOBART	LAKE	INACTIVE
IN0045136	HEINOLD OIL CO-SERVICE STATION	MINOR		PORTER	INACTIVE
IN0045560	CONTINENTAL CAN CO PLT.17	MAJOR		PORTER	INACTIVE
IN0045705	JOSAM MANUFACTURING	MINOR		LA PORTE	INACTIVE
IN0045985	AVERY DENNISON INTERNATIONAL	MINOR	SCHERERVILLE	LAKE	ACTIVE
IN0046736	MARATHON PIPE LINE, GRIFFITH	MINOR	GRIFFITH	LAKE	INACTIVE
IN0046949	PORTER POTW	MINOR	PORTER	PORTER	INACTIVE
IN0047333	BURNS INTERNATIONAL HARBOR	MINOR		PORTER	INACTIVE
IN0048062	DOME PIPELINE CORP. (GRIFFITH)	MINOR	GRIFFITH	LAKE	INACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
IN0048402	WHEELER SANITARY LANDFILL	MINOR	WHEELER,	PORTER	INACTIVE
IN0048810	MARATHON OIL, HAMMOND TERMINAL	MINOR	HAMMOND,	LAKE	INACTIVE
IN0050041	DAPHNE PARK MOBILE HOME COURT	MINOR	MICHIGAN CITY	LA PORTE	ACTIVE
IN0050202	EXPLORER PIPELINE CO	MINOR		LAKE	INACTIVE
IN0050504	CHEM-METALS INC.	MINOR		PORTER	INACTIVE
IN0050563	AMG RESOURCES CORPORATION	MINOR	GARY	LAKE	ACTIVE
IN0050911	INDUSTRIAL DISPOSAL CORP.	MINOR		LAKE	INACTIVE
IN0052094	U.S. STEEL CORP.	MINOR		LAKE	INACTIVE
IN0052345	CONTINENTAL CAN CO	MINOR		PORTER	INACTIVE
IN0052639	SOUTH HAVEN WATER WORK INC	MINOR	VALPARAISO	PORTER	INACTIVE
IN0052825	CALUMET FLEXICORE CORPORATION	MINOR	HAMMOND	LAKE	ACTIVE
IN0053481	BURNS HARBOR MUNICIPAL STP	MINOR	BURNS HARBOR	PORTER	INACTIVE
IN0053589	TALL TIMBER SUBD.	MINOR		LA PORTE	INACTIVE
IN0053694	PRAXAIR, INC. WHITING	MINOR	WHITING	LAKE	INACTIVE
IN0054062	LODGING INNS OF AMERICA	MINOR	CROWN POINT	LAKE	INACTIVE
IN0054178	AGA GAS INC.	MINOR	HAMMOND	LAKE	ACTIVE
IN0054470	CHICAGOLAND CHRISTIAN VILLAGE	MINOR	CROWN POINT	LAKE	ACTIVE
IN0054712	NORCO PIPELINE, INC. HARTSDALE	MINOR	SCHERERVILLE	LAKE	INACTIVE
IN0054798	H-V ROLL CENTER, INC.	MINOR	GARY,	LAKE	ACTIVE
IN0054941	DYER CREAMERY CORPORATION	MINOR	DYER	LAKE	INACTIVE
IN0055611	MOBIL SERVICE STATION	MINOR	DYER	LAKE	INACTIVE
IN0056014	CLARK OIL & REFINING, HAMMOND	MINOR	HAMMOND	LAKE	INACTIVE
IN0056031	BUCKEYE PIPE LINE COMPANY LP	MINOR	EAST CHICAGO	LAKE	ACTIVE
IN0056341	MIDWEST PIPE COATINGS, INC.	MINOR	SCHERERVILLE,	LAKE	INACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
IN0056367	NINTH AVENUE DUMP SUPERFUND SI	MINOR	GARY	LAKE	INACTIVE
IN0056481	MOBIL SERVICE STATION #05-HCC	MINOR	HAMMOND	LAKE	INACTIVE
IN0056715	MCGILL MANUFACTURING WAREHOUSE	MINOR	MALDEN	PORTER	INACTIVE
IN0056766	MARATHON SERVICE STATION #2318	MINOR	SCHERERVILLE	LAKE	INACTIVE
IN0056910	EXXONMOBIL OIL CORP, E CHICAGO	MINOR	EAST CHICAGO	LAKE	ACTIVE
IN0056944	MOBIL SERVICE STATION #99-571	MINOR	MICHIGAN CITY,	LA PORTE	INACTIVE
IN0056952	SPEEDWAY STORE #6090	MINOR	MICHIGAN CITY	LA PORTE	INACTIVE
IN0057380	UNITED GAS STATION #6089	MINOR	MERRILLVILLE	LAKE	INACTIVE
IN0057835	WEIL-MCLAIN	MINOR	MICHIGAN CITY	LA PORTE	INACTIVE
IN0058343	WINFIELD UTILITIES, INC.	MINOR	WINFIELD,	LAKE	ACTIVE
IN0058378	DEEP RIVER WATER PARK WWTP	MINOR	CROWN POINT	LAKE	ACTIVE
IN0058467	UNION TANK CAR COMPANY	MINOR	EAST CHICAGO,	LAKE	ACTIVE
IN0058475	NATURE WORKS CONSERVANCY DIST.	MINOR	VALPARAISO	PORTER	ACTIVE
IN0058785	U.S. GYPSUM CO., E. CHICAGO	MINOR	EAST CHICAGO,	LAKE	INACTIVE
IN0058921	HOWELL TRACTOR & EQUIPMENT CO.	MINOR	GARY	LAKE	ACTIVE
IN0059064	MALLARDS POINTE CONDOMINIUM	MINOR	VALPARAISO	PORTER	ACTIVE
IN0059226	FEDERAL-MOGUL CORPORATION	MINOR	MICHIGAN CITY	LA PORTE	ACTIVE
IN0059714	BETA STEEL CORP.	MINOR	PORTAGE	PORTER	ACTIVE
IN0060330	LAKE GEORGE CONTAINMENT SITE	MINOR	HOBART	LAKE	INACTIVE
IN0060771	WILLIAMS EXPRESS TRAVEL CENTER	MINOR	BURNS HARBOR	PORTER	ACTIVE
IN0060879	BRUMMITT ACRES ELEM. SCHOOL	MINOR	CHESTERTON	PORTER	INACTIVE
IN0109738	WHITE GARY SALES & SERVICE INC	MINOR		LAKE	INACTIVE
ING080022	TRISTATE COACH LINES, INC.	MINOR	GARY	LAKE	INACTIVE
ING080026	PAULSON OIL COMPANY	MINOR	MERRILLVILLE,	LAKE	INACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
ING080041	MARATHON ASHLAND UNIT #3183	MINOR	PORTAGE	PORTER	ACTIVE
ING080050	BUCKEYE PIPE LINE - GRIFFITH	MINOR	GRIFFITH	LAKE	ACTIVE
ING080051	SPEEDWAY STATION #6089	MINOR	MERRILLVILLE,	LAKE	ACTIVE
ING080058	IDOT TOLL ROAD AREA 1 SOUTH	MINOR	PORTAGE	PORTER	ACTIVE
ING080071	MARATHON SERVICE STATION #2318	MINOR	SCHERERVILLE,	LAKE	INACTIVE
ING080072	BLUE CHIP CASINO, INC.	MINOR	MICHIGAN CITY	LA PORTE	INACTIVE
ING080076	MARATHON PIPE LINE, GRIFFITH T	MINOR	GRIFFITH	LAKE	INACTIVE
ING080081	SPEEDWAY STATION #7553	MINOR	MERRILLVILLE	LAKE	ACTIVE
ING080089	MARATHON ASHLAND, GRIFFITH TER	MINOR	GRIFFITH	LAKE	ACTIVE
ING080115	SPEEDWAY STATION #7680	MINOR	MUNSTER	LAKE	INACTIVE
ING080131	TRANMONTAIGNE PIPELINE, DYER	MINOR	DYER	LAKE	ACTIVE
ING250008	CHRIS CRAFT INDUSTRIAL PRODUCT	MINOR	PORTAGE	PORTER	INACTIVE
ING250069	MONOSOL, LLC	MINOR	PORTAGE	PORTER	ACTIVE
ING340003	PHILLIPS PIPE LINE, E CHICAGO	MINOR	EAST CHICAGO	LAKE	ACTIVE
ING340006	SHELL OIL, EAST CHICAGO PLANT	MINOR	HAMMOND	LAKE	INACTIVE
ING340009	CITGO PETROLEUM CORP-E CHICAGO	MINOR	EAST CHICAGO,	LAKE	ACTIVE
ING340011	EQUILION ENTERPRISES, HAMMOND	MINOR	HAMMOND	LAKE	INACTIVE
ING340012	EXPLORER PIPELINE COMPANY	MINOR	HAMMOND	LAKE	ACTIVE
ING340014	TRANSMONTAIGNE, HARTSDALE STAT	MINOR	SCHERERVILLE,	LAKE	INACTIVE
ING340015	LAKETON REFINING, HARTSDALE TE	MINOR	SCHERERVILLE	LAKE	INACTIVE
ING340020	MARATHON OIL, HAMMOND TERM.	MINOR	HAMMOND,	LAKE	INACTIVE
ING340026	TEPPCO - GRIFFITH TERMINAL	MINOR	GRIFFITH	LAKE	ACTIVE
ING340032	EXXONMOBIL OIL CORP, HAMMOND	MINOR	HAMMOND	LAKE	ACTIVE
ING340034	LAKEHEAD PIPE LINE, HARTSDALE	MINOR	SCHERERVILLE	LAKE	ACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
ING340036	MARATHON ASHLAND, HAMMOND TERM	MINOR	HAMMOND	LAKE	ACTIVE
ING340038	LAKEHEAD PIPE LINE, GRIFFITH T	MINOR	GRIFFITH	LAKE	ACTIVE
ING340041	TRANSMONTAIGNE, EAST CHICAGO T	MINOR	EAST CHICAGO	LAKE	INACTIVE
ING340042	EQUILON ENTERPRISES, E. CHICAG	MINOR	HAMMOND	LAKE	ACTIVE
ING340043	GAS CITY, LTD.	MINOR	LOWELL	LAKE	ACTIVE
ING340044	EQUILON ENTERPRISES, HAMMOND T	MINOR	HAMMOND	LAKE	ACTIVE
ING340052	BUCKEYE TERMINALS, HARTSDALE S	MINOR	SCHERERVILLE	LAKE	ACTIVE
ING340053	BUCKEYE TERMINALS, E. CHICAGO	MINOR	EAST CHICAGO	LAKE	ACTIVE
ING670008	TRANSMONTAIGNE, HARTSDALE STA.	MINOR	SCHERERVILLE,	LAKE	INACTIVE
ING670013	ANR PIPELINE, MICHIGAN CITY	MINOR	MICHIGAN CITY	LA PORTE	INACTIVE
ING670017	VECTOR PIPELINE, L.P.	MINOR	LAKE COUNTY	LAKE	ACTIVE
ING670018	VECTOR PIPELINE, L.P.	MINOR	LAKE COUNTY	LAKE	ACTIVE
ING670021	VECTOR PIPELINE, L.P.	MINOR	LAKE COUNTY	LAKE	ACTIVE
ING670023	TRANSMONTAIGNE, HARTSDALE STAT	MINOR	SCHERERVILLE	LAKE	INACTIVE
ING670028	CUSHING-CHICAGO PIPELINE SYS.	MINOR	ST. JOHN	LAKE	ACTIVE
ING670030	BUCKEYE TERMINALS, HARTSDALE S	MINOR	SCHERERVILLE	LAKE	ACTIVE
INL022578	CHESTERTON MUNICIPAL STP	MINOR		PORTER	ACTIVE
INL022829	EAST CHICAGO_MUNICIPAL STP	MINOR		LAKE	ACTIVE
INL022977	GARY WASTEWATER TREATMENT PLT	MINOR		LAKE	ACTIVE
INL023060	HAMMOND MUNICIPAL STP	MINOR		LAKE	ACTIVE
INL023752	MICHIGAN CITY SANITARY DIST.	MINOR		LA PORTE	ACTIVE
INL024368	PORTAGE MUNICIPAL STP	MINOR		PORTER	ACTIVE
INL024457	SCHERERVILLE MUNICIPAL STP	MINOR		LAKE	ACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
INL024660	VALPARAISO MUNICIPAL STP	MINOR		PORTER	ACTIVE
INL025763	CROWN POINT MUNICIPAL STP	MINOR		LAKE	ACTIVE
INL030651	SOUTH HAVEN WATER WORKS, INC.	MINOR		PORTER	ACTIVE
INL030767	LIBERTY ELEM & MIDDLE SCHOOL	MINOR		PORTER	ACTIVE
INL030937	BRUMMIT ELEM. SCHOOL	MINOR		PORTER	ACTIVE
INL031178	GALENA ELEM&FLOYD CENTRAL HS.	MINOR		LA PORTE	ACTIVE
INL031771	JOHN WOOD ELEMENTARY SCHOOL	MINOR		LAKE	ACTIVE
INL035548	MERRILLVILLE CONSERVANCY DIST.	MINOR		LAKE	ACTIVE
INL039331	DYER MUNICIPAL STP	MINOR		LAKE	ACTIVE
INL046949	PORTER POTW	MINOR		PORTER	ACTIVE
INL052248	MORGAN TOWNSHIP SCHOOLS	MINOR		PORTER	ACTIVE
INL053481	BURNS HARBOR MUNICIPAL STP	MINOR		PORTER	ACTIVE
INL057703	WASHINGTON TOWNSHIP SCHOOL	MINOR		PORTER	ACTIVE
INM022578	CHESTERTON COMBINED SEWER SYST	MINOR	CHESTERTON	PORTER	ACTIVE
INP000027	INDIANA PICKLING & PROCESSING	MINOR	PORTAGE	PORTER	ACTIVE
INP000034	ELECTRO SEAL CORPORATION	MINOR	CHESTERTON	PORTER	INACTIVE
INP000059	CHROME DEPOSIT CORPORATION	MINOR	PORTAGE	PORTER	INACTIVE
INP000148	DIETRICH INDUSTRIES, WORTHINGT	MINOR	PORTER	PORTER	ACTIVE
INP000199	MIDWEST PIPE COATING, INC.	MINOR	SCHERERVILLE	LAKE	ACTIVE
INP000203	DEARCRAFT RECYCLING & DISPOSAL	MINOR	MICHIGAN CITY	LA PORTE	ACTIVE
INP000224	NEO INDUSTRIES, INC.	MINOR	PORTAGE	PORTER	ACTIVE
INS100006	LEHIGH PORTLAND DEMOLITION	MINOR	GARY	LAKE	ACTIVE
INS200001	INDIANA PICKLING & PROCESSING	MINOR	PORTAGE,	PORTER	ACTIVE
INS210001	MARBLEHEAD LIME CO, BUFFINGTON	MINOR	GARY	LAKE	ACTIVE

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NPDES	Facility Name	Major/ Minor	City	County	Status
INS230001	PRAXAIR, INC.	MINOR	WHITING	LAKE	ACTIVE
INU000083	ICF KAISER ENG, PCI SYSTEMS CO	MINOR	GARY	LAKE	INACTIVE
INU000156	AMOCO OIL CO. CALUMET AVE FAC	MINOR		LAKE	ACTIVE
INU000209	BI-COUNTY DEVEL., PARKWOOD EST	MINOR		PORTER	ACTIVE
INU000225	STA DECANTING & ENVIRONMENTAL	MINOR		LAKE	ACTIVE
INU000279	MUNSTER, TOWN OF/OAKWOOD AVE S	MINOR		LAKE	ACTIVE
INU000327	VIR-MA INDUSTRIES	MINOR		LAKE	ACTIVE
INU000357	LIVERPOOL SEPTIC & SEWER	MINOR		PORTER	ACTIVE
INU031089	INDEPENDENCE HILL C.D.	MINOR	MERRILLVILLE	LAKE	ACTIVE
INU035548	MERRILLVILLE C.D. WWTP	MINOR	MERRILLVILLE	LAKE	ACTIVE
INU046949	PORTER WWTP, TOWN OF	MINOR	PORTER	PORTER	ACTIVE
INU058998	TOLL ROAD PLAZA 1 NORTH	MINOR	PORTAGE,	PORTER	ACTIVE
INU059978	SPEEDWAY STATION #7524	MINOR	VALPARAISO	PORTER	ACTIVE
INU060801	BURNS HARBOR & BETHLEHEM STEEL	MINOR	BURNS HARBOR	PORTER	ACTIVE
INW000221	COMMONWEALTH EDISON-EDI TEST	MINOR		LAKE	ACTIVE

(from IDEM 2001)

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**TABLE 4.1: RESULTS OF SEASONAL KENDALL ANALYSIS FOR STATIONS LOCATED
IN THE LITTLE CALUMET-GALIEN WATERSHED 1986 TO 1995**

Parameter	BOD	COD	D.O.	E. coli	Ammonia	Nitrate + Nitrite	Total Phosphorus	Total Residue	Total Residue, Filterable	Total Residue, Nonfilterable
BD-1										
BD-2E										
BD-3W										
GC R-34										
GC R-37										
GC R-42										
IHC-0										
IHC-2										
IHC-3S										
IHC-3W										
LCR-13										
LCR-39										
LM-EC										
LM-G										
LM-H										
LM-M										
LM-W										
SLC-1										

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Parameter	BOD	COD	D.O.	E. coli	Ammonia	Nitrate + Nitrite	Total Phosphorus	Total Residue	Total Residue, Filterable	Total Residue, Nonfilterable
SLC-17										
TC-0.5										
TC-1										
TC-2										
WL-SL										

Notes

BOD = Biological Oxygen Demand

COD = Chemical Oxygen Demand

D.O. = Dissolved Oxygen

= No Statistical Change; significance < 80% or reported slope = 0.00000

= Statistically Decreasing; significance >95% with a negative slope

= Potentially Decreasing; significance >80% with a negative slope

= Potentially Increasing; significance >80% with a positive slope

= Statistically Increasing; significance >95 % with a positive slope

= Insufficient Data for analysis

The fixed station monitoring site codes used above refer to the following locations:

BD-1 = Burns Ditch, U.S. Hwy 12 Bridge, Portage
 BD-2E = Burns Ditch, State Hwy 249 Bridge, Portage
 BD-3W = Burns Ditch, Portage Boat Yard Dock, Portage
 GCR-34 = Grand Calumet River, Hohman Avenue Bridge, Hammond
 GCR-37 = Grand Calumet River, Bridge on Kennedy Avenue, East Chicago
 GCR-42 = Grand Calumet River, Bridge Street Bridge, Gary
 IHC-0 = Indiana Harbor Canal, At Mouth at LTV Steel, East Chicago
 IHC-2 = Indiana Harbor Canal, Bridge on Dickey Road, East Chicago
 IHC-3S = Indiana Harbor Canal, Bridge on Columbus Drive, East Chicago
 IHC-3W = Indiana Harbor Canal, Bridge on Indianapolis Blvd, East Chicago
 LCR-13 = Little Calumet River, Hohman Avenue Bridge, Hammond

LCR-39 = Little Calumet River, S.R. 149, Porter
 LM-EC = Lake Michigan, Raw Water of the East Chicago Waterworks, East Chicago
 LM-G = Lake Michigan, Raw Water of the Gary Waterworks, Gary
 LM-H = Lake Michigan, Raw Water of the Hammond Waterworks, Hammond
 LM-M = Lake Michigan, Raw Water of the Michigan City Waterworks, Michigan City
 LM-W = Lake Michigan, Raw Water of the Whiting Waterworks, Whiting
 SLC-1 = Salt Creek, U.S. 20 Bridge, Portage
 SLC-17 = Salt Creek, S.R. 130 Bridge, Valparaiso
 TC-0.5 = Trail Creek, Franklin Street Bridge, Michigan City
 TC-1 = Trail Creek, U.S. Hwy 12 Bridge, Michigan City
 TC-2 = Trail Creek, Krueger Park Bridge, Michigan City
 WL-SL = Wolf Lake, Culvert at Stateline at End of 129th St, Hammond

TABLE 4-2: ISDH DEFINITIONS FOR FISH CONSUMPTION ADVISORY GROUPS

Group 1	Unrestricted consumption
Group 2	One meal per week (52 meals per year) for adult males and females. One meal per month for women who are pregnant or breastfeeding, women who plan to have children, and children under the age of 15.
Group 3	One meal per month (12 meals per year) for adult males and females. Women who are pregnant or breastfeeding, women who plan to have children, and children under the age of 15 do not eat.
Group 4	One meal every two months (six meals per year) for adult males and females. Women who are pregnant or breastfeeding, women who plan to have children, and children under the age of 15 do not eat.
Group 5	No consumption (DO NOT EAT)

Carp generally are contaminated with both PCBs and mercury. Except as otherwise noted, carp in all Indiana rivers and streams fall under the following risk groups:

Carp, 15-20 inches - Group 3

Carp, 20-25 inches - Group 4

Carp over 25 inches - Group 5

(from ISDH, IDNR, and IDEM 2001)

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TABLE 4-3: 2001 INDIANA FISH CONSUMPTION ADVISORY

Location	Species	Fish Size (inches)	Contaminant	Group
Grand Calumet River/Indiana Harbor Canal				
<i>Lake County</i>	ALL	ALL	■○	5
Trail Creek				
<i>LaPorte County</i>	Carp	23-25	■	5
Lake George				
<i>Lake County</i>	Northern Pike	18+	■	2
Marquette Park Lagoon				
<i>Lake County</i>	Bluegill	4-7	■	3
		7+	■	4
	Largemouth Bass	12+	■	3
Wolf Lake				
<i>Lake County</i>	Largemouth Bass	13-17	■	3
		17+	■	4
	White Bass	13-15	■	3
		15+	■	4
ALL Other Tributaries to Lake Michigan				
<i>Lake County, LaPorte County, & Porter County</i>	Black Crappie	7-8	■	3
		8+	■	4
	Bloater	10+	■	3
	Bluegill	7-8	○	2
		8+	○	3
	Brook Trout	ALL	■	3

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Brown Trout	Up to 18 18-27 27+	■ ■ ■	3 4 5
Carp	ALL	■○	5
Channel Catfish	ALL	■	5
Chinook Salmon	Up to 26 26-30 30+	■ ■ ■	3 4 5
Coho Salmon	17-28 28+	■ ■	3 4
Freshwater Drum	14-17 17-20 20+	■ ■ ■	3 4 5
Lake Trout	Up to 21 21-26 26+	■ ■ ■	3 4 5
Lake Whitefish	9-12 12-20 20-24 24+	■○ ■○ ■○ ■○	2 3 4 5
Largemouth Bass	4-7 7+	■ ■	3 4
Longnose Sucker	14-23 23+	■○ ■	4 5
Northern Pike	10-14 14+	■ ■	3 4
Pink Salmon	ALL	■	3
Quillback	20+	■	3
Rainbow Trout	Up to 22 22-32 32+	■ ■ ■	3 4 5
Rock Bass	8-9	■○	2

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Round Goby	3-4 4+	■○ ■○	2 3
Silver Redhorse	25+	■	5
Smallmouth Bass	11-12 12+	■ ■	3 5
Walleye	17-26 26+	■ ■	3 4
White Sucker	15-23 23+	■○ ■	3 4
Yellow Perch	7-10	■	2

*○ = Mercury, ■ = PCBs
(from ISDH, IDNR, and IDEM 2001)

TABLE 4-4: CRITERIA FOR USE SUPPORT ASSESSMENT (U.S. EPA 305(B) GUIDELINES)

Parameter	Fully Supporting	Partially Supporting	Not Supporting
Aquatic Life Use Support			
Toxicants	Metals were evaluated on a site by site basis and judged according to magnitude of exceedance and the number of times exceedances occurred.		
Conventional inorganics	There were very few water quality violations, almost all of which were due to natural conditions.		
Benthic aquatic macroinvertebrate Index of Biotic Integrity (mIBI)	mIBI ≥ 4.	mIBI < 4 and ≥ 2.	mIBI < 2.
Qualitative habitat use evaluation (QHEI)	QHEI ≥ 64.	QHEI < 64 and ≥ 51.	QHEI < 51.
Fish community (fIBI) (Lower White River only)	IBI ≥ 44.	IBI < 44 and ≥ 22	IBI < 22.
Sediment (PAHs = polynuclear aromatic hydrocarbons. AVS/SEM = acid volatile sulfide/ simultaneously extracted metals.)	All PAHs ≤ 75 th percentile. All AVS/SEMs ≤ 75 th percentile. All other parameters ≤ 95 th percentile.	PAHs or AVS/SEMs > 75 th percentile. (Includes Grand Calumet River and Indiana Harbor Canal sediment results, and so is a conservative number.)	Parameters > 95 th percentile as derived from IDEM Sediment Contaminants Database.
Indiana Trophic State Index (lakes only)	Nutrients, dissolved oxygen, turbidity, algal growth, and sometimes pH were evaluated on a lake-by-lake basis. Each parameter judged according to magnitude.		
Fish Consumption			
Fish tissue	No specific Advisory*	Limited Group 2 - 4 Advisory*	Group 5 Advisory*
* Indiana Fish Consumption Advisory, 1997, includes a statewide advisory for carp consumption. This was not included in individual waterbody reports because it obscures the magnitude of impairment caused by other parameters.			
Recreational Use Support (Swimmable)			
Bacteria (cfu = colony forming units.)	No more than one grab sample slightly > 235 cfu/100ml, and geometric mean not exceeded.	No samples in this classification.	One or more grab sample exceeded 235 cfu/100ml, and geometric mean exceeded.

(from Indiana Water Quality Report for 1998 (IDEM 1998))

TABLE 5-1: TYPES OF PERMITS ISSUED UNDER THE NPDES PROGRAM

Type of Permit	Subtype	Comment
Municipal, Semi-Public or State (sanitary discharger)	Major	A facility owned by a municipality with a design flow Municipal of 1 MGD or greater (Cities, Towns, Regional Sewer Districts)
	Minor	Any municipally owned facility with a design flow of less than 1 MGD (Cities, Towns, Regional Sewer Districts)
	Semi-public	Any facility not municipally, State or Federally owned (i.e. mobile home parks, schools, restaurants, etc.)
	State Owned	A facility owned or managed by a State agency (State parks, prisons, etc.)
	Federally Owned	A facility owned by a federal agency (military owned installation, national park, federal penitentiary, etc.)
Industrial (Wastewater generated in the process of producing a product)	Major	Any point source discharger designated annually by agreement between the commissioner and EPA. Classification of discharger as major involves consideration of factors relating to significance of impact on the environment, such as: nature and quantity of pollutants discharged; character and assimilative capacity of receiving waters; presence of toxic pollutants in discharge; compliance history of discharger.
	Minor	All dischargers which are not designated as major dischargers.
	General	General permit rule provides streamlined NPDES permitting process for certain categories of industrial point source discharges under requirements of the applicable general permit rule, rather than requirements of an individual permit specific to a single discharge. General permit rules: 327 IAC 15-7 Coal mining, coal processing, and reclamation activities; 327 IAC 15-8 Non-contact cooling water; 327 IAC 15-9 Petroleum product terminals; 327 IAC 15-10 Groundwater petroleum remediation systems; 327 IAC 15-11 Hydrostatic testing of commercial pipelines; 327 IAC 15-12 Sand, gravel, dimension stone or crushed stone operations.
	Cooling Water	Water which is used to remove heat from a product or process; the water may or may not come in contact with the product.
	Public Water Supply	Wastewater generated from the process of removing pollutants from ground or surface water for the purpose of producing drinking water.
Pretreatment Urban Wet Weather Group (Associated with NPDES but do not fall under same rule.)	Stormwater-related	Wastewater resulting from precipitation coming in contact with a substance which is dissolved or suspended in the water.
	Industrial Wastewater Pretreatment	Processed wastewater generated by industries that contribute to the overall wastewater received by the wastewater treatment plant.
	Combined Sewer Overflow (CSO)	Wastewater discharged from combined storm and sanitary sewers due to precipitation events. Municipal and Industrial Urban Wet Weather Programs